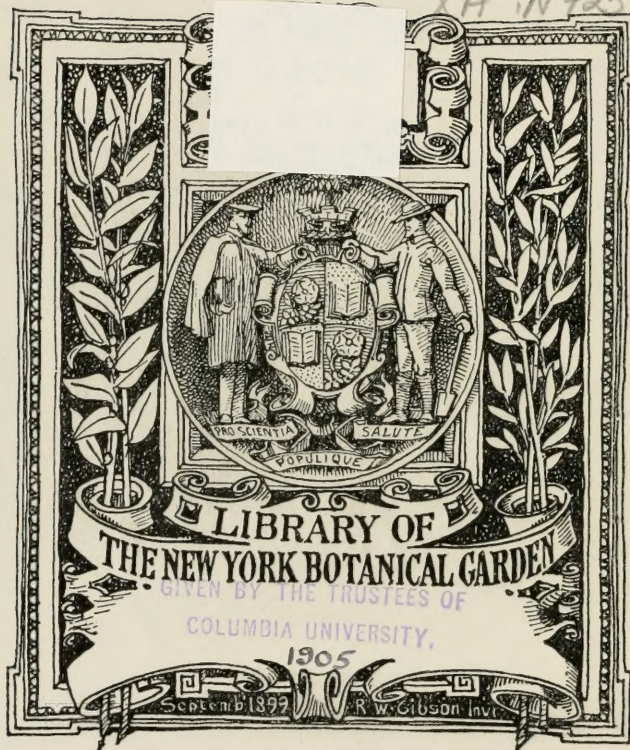
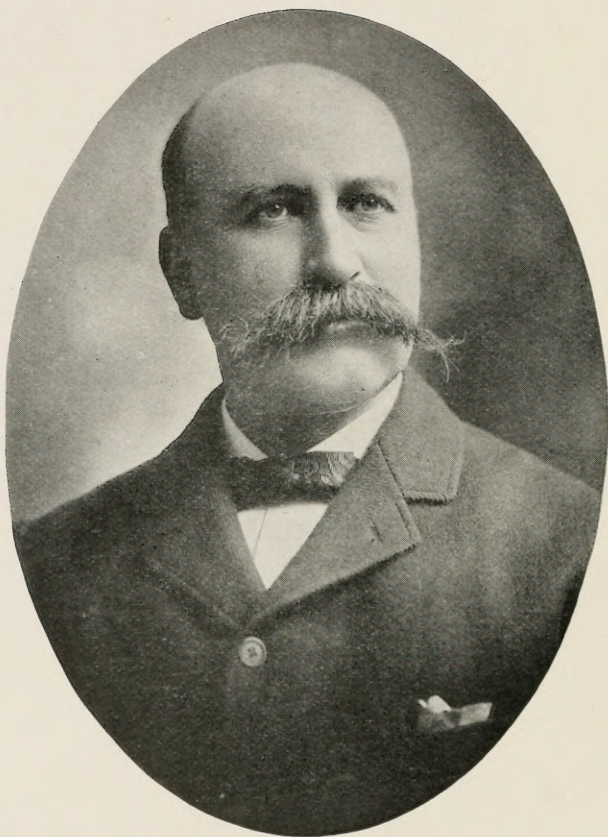


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M. S. CLAYPOOL.

FIFTY-SECOND ANNUAL REPORT

OF THE

Indiana State Board of Agriculture

VOLUME XLIV—1902—1903

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*Proceedings of the Annual Meeting, 1903 ; Reports of County and District Societies,
State Meetings of Swine Breeders, Corn Growers' Association, Farmers'
Institutes, Experiment Station, Farmers' Insurance Union,
Statistics on Vegetables and Cereals, State
Dairy Association, etc., etc.*

TO THE GOVERNOR

INDIANAPOLIS:

WM. B. BURFORD, CONTRACTOR FOR STATE PRINTING AND BINDING.

1903.

THE STATE OF INDIANA,
EXECUTIVE DEPARTMENT,
INDIANAPOLIS, August 27, 1903. }

Received by the Governor, examined and referred to the Auditor of State for verification of the financial statement.

OFFICE OF AUDITOR OF STATE,
INDIANAPOLIS, September 25, 1903. }

The within report, so far as the same relates to moneys drawn from the State Treasury, has been examined and found correct.

D. E. SHERRICK,
Auditor of State.

September 25, 1903.

Returned by the Auditor of State, with above certificate, and transmitted to Secretary of State for publication, upon the order of the Board of Commissioners of Public Printing and Binding.

GEO. B. LOCKWOOD,
Private Secretary.

Filed in the office of the Secretary of State of the State of Indiana, September 25, 1903.

DANIEL E. STORMS,
Secretary of State.

Received the within report and delivered to the printer this 25th day of September, 1903.

THOS. J. CARTER,
Clerk Printing Bureau.

INDIANA STATE BOARD OF AGRICULTURE.

INDIANAPOLIS, IND., August 26, 1903.

To the HONORABLE WINFIELD T. DURBIN, Governor of Indiana :

DEAR SIR—I beg to submit herewith the report of the proceedings of the Indiana State Board of Agriculture for the year 1902.

Very respectfully,

CHARLES DOWNING,
Secretary.

MEMBERS

OF THE

Indiana State Board of Agriculture

1902.

- 1st District—JOHN C. HAINES, Rockport, Spencer County.
2d District—MASON J. NIBLACK, Vincennes, Knox County.
3d District—E. S. TUELL, Corydon, Harrison County.
4th District—JOHN TILSON, Franklin, Johnson County.
5th District—H. L. NOWLIN, Lawrenceburg, Dearborn County.
6th District—KNODE PORTER, Hagerstown, Wayne County.
7th District—DAVID WALLACE, Indianapolis, Marion County.
8th District—SID CONGER, Shelbyville, Shelby County.
9th District—W. T. BEAUCHAMP, Terre Haute, Vigo County.
10th District—J. C. BRIDGES, Bainville, Putnam County.
11th District—M. S. CLAYPOOL, Muncie, Delaware County.
12th District—WM. M. BLACKSTOCK, Lafayette, Tippecanoe County.
13th District—JOHN L. THOMPSON, Gas City, Grant County.
14th District—JOE CUNNINGHAM, Peru, Miami County.
15th District—C. B. BENJAMIN, LeRoy, Lake County.
16th District—JAS. E. McDONALD, Ligonier, Noble County.
-

OFFICERS FOR 1902.

M. S. CLAYPOOL, *President.*

JOHN L. THOMPSON,
Vice-President.

E. H. PEED,
General Superintendent.

CHARLES DOWNING,
Secretary.

J. W. LAGRANGE,
Treasurer.

Executive Committee.

MESSRS. NIBLACK, THOMPSON, BEAUCHAMP, McDONALD, CONGER.

A TABLE SHOWING THE OFFICERS, PLACE, AND PREMIUMS PAID OF EACH FAIR HELD BY THE STATE BOARD OF AGRICULTURE.

<i>Year.</i>	<i>President.</i>	<i>Secretary.</i>	<i>Treasurer.</i>	<i>General Superintendent.</i>	<i>Place of Fair.</i>	<i>Premiums Paid.</i>
1852....	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	W. T. Dennis	Indianapolis	
1853....	Gov. Joseph A. Wright	John B. Dillon	Royal Mayhew	J. J. Bingham	Lafayette	
1854....	Gov. Joseph A. Wright	Wm. T. Dennis	Royal Mayhew	W. T. Dennis	Madison	
1855....	Gen. Joseph Orr	John B. Dillon	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	\$2,753 00
1856....	Dr. A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,225 00
1857....	Dr. A. C. Stevenson	Ignatius Brown	S. A. Buell	Calvin Fletcher, Jr.	Indianapolis	4,127 00
1858....	Dr. A. C. Stevenson	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr.	Indianapolis	
1859....	George D. Wagner	John B. Dillon	Thomas H. Sharp	Calvin Fletcher, Jr.	Indianapolis	6,163 00
1860....	George D. Wagner	Wm. T. Dennis	Thomas H. Sharp	James L. Bradley	New Albany	3,827 00
1861....	D. P. Holloway	Wm. T. Dennis	H. A. Fletcher	James L. Bradley	Indianapolis	3,994 00
1862....	James D. Williams	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	
1863....	A. D. Hamrick	W. H. Loomis	H. A. Fletcher	J. A. Grosvenor	Indianapolis	4,121 00
1864....	Stearns Fisher	W. H. Loomis	Francis King	W. H. Loomis	Indianapolis	4,078 00
1865....	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Fort Wayne	
1866....	Stearns Fisher	W. H. Loomis	Carlos Dickson	J. A. Grosvenor	Indianapolis	
1867....	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Terre Haute	6,331 00
1868....	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,087 00
1869....	A. D. Hamrick	A. J. Holmes	Carlos Dickson	J. B. Sullivan	Indianapolis	7,517 00
1870....	J. D. Williams	Joseph Poole	Carlos Dickson	J. S. Benson	Indianapolis	7,914 00
1871....	J. D. Williams	Joseph Poole	Carlos Dickson	Jacob Mutz	Indianapolis	8,564 00
1872....	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	9,619 20
1873....	John Sutherland	Alex. Herron	Carlos Dickson	H. W. Caldwell	Indianapolis	8,864 75
1874....	John Sutherland	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	10,754 00
1875....	William Crim	Alex. Herron	Carlos Dickson	E. J. Howland	Indianapolis	12,068 20
1876....	Hezekiah Caldwell	Alex. Herron	Carlos Dickson	J. L. Hanna	Indianapolis	8,179 30
1877....	Jacob Mutz	Alex. Herron	Carlos Dickson	J. W. Furnas	Indianapolis	6,337 95
1878....	W. B. Seward	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,057 00
1879....	Robert Mitchell	Alex. Herron	Carlos Dickson	R. M. Lockhart	Indianapolis	5,472 00
1880....	W. H. Ragan	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6,553 00
1881....	R. M. Lockhart	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	6,855 50
1882....	H. C. Meredith { L. B. Custer	Alex. Herron { Alex. Herron	J. A. Wildman { J. A. Wildman	Fielding Beeler { Fielding Beeler	Indianapolis { Indianapolis	8,096 00

1883.....	Robert Mitchell	Alex. Herron	J. A. Wildman	Fielding Beeler	Indianapolis	\$9,581 13
1884.....	Robert Mitchell	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	10,414 30
1885.....	R. M. Lockhart	Alex. Herron	S. Johnson	Fielding Beeler	Indianapolis	9,000 50
1886.....	W. B. Seward	Alex. Herron	S. Johnson	H. B. Stout	Indianapolis	9,419 00
1887.....	W. B. Seward	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	9,726 50
1888.....	J. N. Davidson	Alex. Herron	S. Johnson	R. M. Lockhart	Indianapolis	9,917 50
1889.....	J. N. Davidson	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	10,200 00
1890.....	W. A. Banks	Alex. Herron	S. Johnson	C. E. Merrifield	Indianapolis	13,040 50
1891.....	W. A. Banks	Leon T. Bagley	S. Johnson	C. E. Merrifield	Indianapolis	15,297 00
1892.....	J. M. Boggs	Leon T. Bagley	S. Johnson	E. H. Peed	Indianapolis	19,876 00
1893.....	V. K. Officer	Chas. F. Kennedy	J. A. Wildman	E. H. Peed	Indianapolis	18,407 50
1894.....	J. M. Sankey	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	18,516 70
1895.....	J. M. Sankey	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	17,561 98
1896.....	W. W. Hamilton	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	14,817 17
1897.....	C. B. Harris	Chas. F. Kennedy	E. J. Robison	E. H. Peed	Indianapolis	19,296 88
1898.....	Charles Downing	Chas. F. Kennedy	E. J. Robison	John L. Thompson	Indianapolis	11,113 32
1899.....	W. W. Stevens	Chas. F. Kennedy	J. W. Lagrange	H. B. Howland	Indianapolis	17,107 11
1900.....	Aaron Jones	Charles Downing	J. W. Lagrange	H. B. Howland	Indianapolis	16,125 75
1901.....	J. E. McDonald	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	15,935 50
1902.....	M. S. Claypool	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	18,196 25
1903.....	N. S. Claypool	Charles Downing	J. W. Lagrange	E. H. Peed	Indianapolis	

Henry C. Meredith died July 5, 1882, and the Vice-President, L. B. Custer, served the unexpired term.

LIST OF MEMBERS OF INDIANA STATE BOARD OF AGRICULTURE,
SHOWING DATE AND TERM OF SERVICE.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Allen, Joseph	Montgomery	1853	2
Banks, W. A.	Laporte	1882	12
Barnes, John P.	Madison	1879	4
Barnett, Cott.	Cass	1898	3
Basler, F.	Sullivan	1872	2
Bennett, Wm. H.	Union	1854	7
Bennett, Wm. H.	Union	1863	2
Berry, W. W.	Knox	1889	3
Blackstock, Wm. M.	Tippecanoe	1895	2
Blanche, Willis	Howard	1887	2
Boggs, John M.	Tippecanoe	1885	8
Bonner, W. H. ....	.....	1859	2
Bradley, James L.	Johnson	1856	3
Branham, D. C.	Jefferson	1861	2
Brown, Dr. R. T.	Montgomery	1855	4
Brown, Geo. W.	Shelby	1857	2
Burke, L. A.	Posey	1870	5
Buskirk, Geo. A.	Monroe	1870	2
Beauchamp, Wm. T.	Vigo	1899	1
Bridges, John C.	Putnam	1901	..
Caldwell, Hezekiah	Wabash	1867	12
Carr, John F.	Jackson	1862	2
Claypool, A. B.	Fayette	1871	8
Claypool, M. S.	Delaware	1893	7
Clemens, B. F.	Wabash	1889	2
Cockrum, Jas. W.	Gibson	1853	2
Coffin, W. G.	Vermillion	1859	4
Cofield, J. W.	Ohio	1877	4
Collins, T. H.	Floyd	1858	4
Cotteral, W. W.	Henry	1883	2
Cox, E. T.	Posey	1864	6
Crawford, George	Laporte	1862	2
Crim, Wm.	Madison	1869	9
Custer, L. B.	Cass	1878	10
Conger, Sid	Shelby	1900	1
Davis, John L.	Montgomery	1895	5
Davidson, Stephen	Fulton	1870	8
Davidson, Jasper N.	Montgomery	1883	12
Dennis, W. T.	Wayne	1854	5
Donaldson, W. C.	Parke	1863	8
Dowling, Thomas	Vigo	1871	4
Downing, Charles	Hancock	1893	8
Drake, James P.	Marion	1854	2
Dume, George G.	Lawrence	1851	2
Duncan, Wm.	Lawrence	1858	4
Dungan, S. W.	Johnson	1882	12
Durham, Thos.	Vigo	1852	2

LIST OF MEMBERS, ETC.—Continued.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Emison, Samuel.....	Knox	1851	2
Fisher, Stearns.....	Wabash.....	1854	13
Fletcher, Calvin	Marion	1862	2
Franklin, W. M.....	Owen	1855	3
Freeman, A.....	Porter	1858	4
Gaar, J. M.....	Wayne.....	1865	2
Gerard, J. B.	Dearborn.....	1873	2
Gilbert, Joseph	Vigo.....	1881	2
Grafte, Dr. G. B.....	Gibson.....	1855	5
Graham, John M.....	Delaware	1883	4
Greer, W. A.	Dearborn.....	1885	3
Grosvenor, J. A.....	Marion	1864	2
Haines, John C.....	Lake	1896	4
Hamrick, A. D.....	Putnam	1859	14
Hamilton, W. W.....	Decatur	1891	6
Hancock, R. H.....	Harrison	1878	6
Hargrove, Samuel.....	Pike.....	1882	6
Harris, Jas. B.....	Elkhart.....	1892	6
Harris, Jacob E.....	Switzerland	1851	4
Hay, A. Y.....	Clark	1854	2
Haymonds, Dr. Rufus	Franklin.....	1855	4
Haynes, R. P.....	Daviess	1875	8
Helm, Dr. Y. C.	Delaware	1859	10
Herriot, Samuel.....	Johnson	1853	2
Herron, Alex	Fayette	1867	4
Holton, W. B.....	Marion	1894	2
Holloway, David P.....	Wayne.....	1851	4
Holloway, David P.....	Wayne.....	1861	2
Holmes, D. J. C.....	Delaware	1859	10
Howland, H. B.....	Marion	1892	2
Howland, H. B.....	Marion	1896	3
Hutstetter, David	Orange.....	1853	2
Hussey, George	Vigo.....	1851	1
Johnson, F. C.	Floyd.....	1872	6
Jones, Aaron.....	St. Joseph.....	1894	6
Jones, Dick.....	Bartholomew.....	1883	8
Jones, Lloyd.....	Huntington	1889	4
Kelley, John B.....	Warrick	1851	2
Kirkpatrick, T. M.....	Howard	1881	2
Lagrange, J. W.....	Johnson.....	1894	4
Lane, George W.....	Dearborn.....	1852	8
LaTourette, Henry	Fountain.....	1883	4
Levering, John	Tippecanoe	1852	2
Levering, Mortimer	Tippecanoe	1897	4

LIST OF MEMBERS, ETC.—Continued.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Lockhart, R. M.	Dekalb.	1874	10
Loder, Isaac B.	Rush	1861	4
Loomis, W. H.	Allen	1861	4
Matson, J. A.	Putnam.	1854	1
Matthews, Claude	Vermillion.	1897	2
Maze, W. A.	Tipton	1891	4
Meredith, Henry C.	Wayne.	1879	4
Milhouse, J. V.	Jennings.	1875	2
Mitchell, Robert	Gibson.	1875	21
Mitchell, Thos. V.	Rush	1869	10
Morgan, Jesse	Rush	1852	2
Mutz, Jacob	Shelby	1868	14
McBride, Jeremiah.	Martin.	1851	3
McClung, J. A.	Fulton	1888	4
McConnell, George N.	Steuben.	1860	2
McConnell, George N.	Steuben.	1864	6
McCoy, James S.	Knox	1892	4
McCrea, John	Monroe	1864	6
McDonald, M. A.	Warren	1893	2
McDonald, James E.	Noble	1894	6
McMahan, John	Washington.	1851	3
McWilliams, R. C.	Parke.	1881	2
Nelson, J. D. G.	Allen	1853	6
Nelson, J. D. G.	Allen	1870	4
Nelson, Thomas.	Parke.	1875	4
Nelson, Thomas	Parke.	1889	2
Niblack, Mason J.	Knox	1896	4
North, Benjamin.	Ohio	1867	6
Nowlin, H. L.	Dearborn	1897	4
Officer, V. K.	Jefferson	1888	9
O'Neal, J. K.	Tippecanoe.	1881	2
Orr, Joseph	Laporte	1851	6
Peck, Henry	Cass	1862	2
Peed, E. H.	Henry	1885	8
Piatt, Nathan	Warrick	1860	4
Porter, Knode	Wayne.	1897	3
Poole, Joseph.	Fountain.	1861	12
Quick, S. R.	Bartholomew.	1879	4
Raab, D. G.	Ohio	1856	5
Ragan, W. H.	Putnam	1873	10
Ratliff, John	Grant	1883	4
Reese, D. E.	Dearborn	1865	4
Reiter, Gerard	Knox	1888	1
Robison, E. A.	Johnson.	1898	3
Robison, E. J.	Marion.	1902	1

LIST OF MEMBERS, ETC.—Continued.

NAME.	COUNTY.	FIRST ELECTED.	NO. YEARS SERVED.
Sample, H. P.	Tippecanoe.	1873	8
Sankey, James M.	Vigo.	1891	6
Shoemaker, John C.	Perry.	1862	10
Seig, J. Q. A.	Harrison.	1884	10
Seward, A.	Monroe.	1851	2
Seward, W. B.	Monroe.	1872	20
Seybold, Dempsey.	Parke.	1879	2
Simonton, Robert.	Huntington.	1887	2
Smith, Abraham.	Knox.	1853	2
Spalding, T. N.	Lagrange.	1852	2
Stevenson, Alex. C.	Putnam.	1851	3
Stevenson, Alex. C.	Putnam.	1855	4
Stevens, W. W.	Washington.	1894	6
Stewart, Charles B.	Tippecanoe.	1883	2
Sunman, T. W. W.	Ripley.	1881	4
Sutherland, John.	Laporte.	1864	18
Swinney, Thomas W.	Allen.	1851	1
Thompson, John L.	Grant.	1895	5
Thompson, S. H.	Jefferson.	1864	3
Turner, John N.	Grant.	1879	2
Tuttle, T. W.	Delaware.	1876	1
Vawter, S.	Jennings.	1855	3
Vinton, A. E.	Marion.	1858	2
Wagner, G. D.	Warren.	1854	7
Wiley, Lemuel.	Switzerland.	1863	1
Willard, Roland.	Kosciusko.	1851	2
Williams, James D.	Knox.	1855	18
Wright, Joseph A.	Marion.	1851	3

State Industrial Associations.

OFFICERS FOR 1902.

Indiana State Board of Agriculture—President, M. S. Claypool, Muncie; Secretary, Charles Downing, Indianapolis.

Indiana Horticultural Association—President, John Tilson, Franklin; Secretary, W. B. Flick, Lawrence.

Indiana Shorthorn Breeders' Association—President, E. Folsom, Indianapolis; Secretary, W. J. Quick, Brooklyn.

Indiana Dairymen's Association—President, J. J. W. Billingsley, Indianapolis; Secretary, H. E. Van Norman, Lafayette.

Indiana Wool Growers' Association—President, Sid Conger, Flatrock; Secretary, J. W. Robe, Greencastle.

Indiana Swine Breeders' Association—President, J. B. Luyster, Franklin; Secretary, Allen Beeler, Liberty.

Indiana Poultry Breeders' Association—President, Frank Johnson, Howlands; Secretary, Jesse Tarkington, Indianapolis.

Indiana Farmers' Mutual Insurance Union—President, Aaron Jones, South Bend; Secretary, H. L. Nowlin, Lawrenceburg.

Indiana Jersey Cattle Club—President, W. S. Budd, Indianapolis; Secretary, Harry Jenkins, Indianapolis.

Indiana Corn Growers' Association—President, A. O. Lockridge, Greencastle; Secretary and Treasurer, H. F. McMahan, Fairfield.

Farmers' Institutes—Director, Prof. W. C. Latta, Purdue University, Lafayette.

Experiment Station—Director, Prof. John Skinner, Purdue University, Lafayette.

State Chemist—Prof. H. A. Huston, Purdue University, Lafayette.

State Entomologist—Prof. James Troop, Purdue University, Lafayette.

THE

Indiana State Board of Agriculture

CONSTITUTION.

AS REVISED AND ADOPTED AT THE JANUARY MEETING OF THE BOARD, 1891.

Article 1. The name and style of this society shall be "The Indiana State Board of Agriculture," its objects, to promote and improve the condition of agriculture, horticulture, and the mechanic, manufacturing and household arts.

Art. 2. There shall be held in the city of Indianapolis, at such time as may be prescribed by law, an annual meeting of the State Board of Agriculture, together with presidents, or other delegates duly authorized, from each county, or such other agricultural society as may be authorized by law to send delegates, who shall, for the time being, be ex-officio members of the State Board of Agriculture, for the purpose of deliberation and consultation as to the wants, prospects and condition of the agricultural interests throughout the State; and at such annual meetings the several reports from county societies shall be delivered to the President of the State Board of Agriculture; and the said President and delegates shall, at this meeting, elect suitable persons to fill all vacancies in this Board: Provided, however, That said election shall not affect the members of the Board present, whose terms shall not be considered to expire until the last day of the session.

Art. 3. The State Board-elect shall meet immediately after the adjournment of the State Board, for the purpose of organization and for the transaction of such other business as the wants and interests of the society may require; and hold such other meetings from time to time, for making out premium lists, preparing for State Fairs, and all other business necessary to the promotion of the objects of the society.

Art. 4. The State Board-elect shall consist of sixteen members, chosen from the following districts:

- 1st District—Posey, Vanderburgh, Gibson, Warrick and Spencer counties.
- 2d District—Knox, Daviess, Martin, Pike, Dubois, Crawford and Perry counties.
- 3d District—Harrison, Washington, Orange, Floyd, Clark and Scott counties.
- 4th District—Jackson, Lawrence, Brown, Monroe, Greene, Owen, Johnson and Sullivan counties.
- 5th District—Jefferson, Switzerland, Ohio, Dearborn, Franklin, Ripley, and Jennings counties.
- 6th District—Bartholomew, Decatur, Rush, Fayette, Union and Wayne counties.
- 7th District—Madison, Hancock, Hamilton, Henry and Shelby counties.
- 8th District—Marion County.
- 9th District—Clay, Vigo, Parke, Vermillion and Fountain counties.
- 10th District—Putnam, Morgan, Hendricks, Montgomery and Boone counties.
- 11th District—Delaware, Randolph, Jay, Adams, Wells, Huntington and Blackford counties.
- 12th District—Carroll, White, Benton, Newton, Tippecanoe, Warren, Jasper and Pulaski counties.
- 13th District—Clinton, Tipton, Howard, Grant, Wabash and Whitley counties.
- 14th District—Elkhart, Kosciusko, Fulton, Cass and Maimi counties.
- 15th District—St. Joseph, Marshall, Starke, Laporte, Porter and Lake counties.
- 16th District—Allen, Dekalb, Steuben, Lagrange and Noble counties.

Chosen for two years, one-half of whose terms expire every year, to wit: Those representing the first, second, third, fourth, seventh, fourteenth, fifteenth and sixteenth districts expire at the annual meeting of 1860, and those representing the fifth, sixth, eighth, ninth, tenth, eleventh, twelfth and thirteenth districts expire at the annual meeting to be held in January, 1861. To be chosen by ballot.

Art. 5. It shall be the duty of the President to preside at all meetings, conduct the business in an orderly and parliamentary manner, and officially sign all vouchers and drafts upon the Treasurer (except for premiums), and all other instruments requiring the same, and call special meetings in cases of emergency.

Art. 6. The State Board-elect shall, at the annual meeting after the adjournment of the delegate meeting, proceed to elect one of their number President, who shall hold his office for a term of one year, and until his successor is elected and qualified; and one of their number for Vice-

President, whose term shall be the same as President, who shall act, and for the time being have all the power, as President, whenever the President is absent from any regular meeting. They shall also elect some suitable person as Secretary and some suitable person as Treasurer, and a General Superintendent, who shall hold their offices each for one year, unless removed for incompetency or neglect of duty. They shall also elect four of their number who shall, with the President, constitute an Executive Committee, who shall have power to act in cases of emergency, where loss would result by waiting till a regular meeting of the Board, but shall have no power whatever during a meeting of the Board.

Art. 7. It shall be the duty of the Treasurer to safely keep the funds belonging to the society, pay out the same on orders or drafts drawn by the Secretary, and report annually to the State Board, and as much oftener as he may be called upon by the Board, and shall give bond for the faithful performance of his duties.

Art. 8. It shall be the duty of the General Superintendent to take care of and carefully keep all property belonging to the society, have the care and control of the Fair Grounds during the recess; have the supervision and oversight of such improvements or additions as may be directed by the State Board, and, under their direction, procure materials, contract for labor, and shall be, during the continuance of the Fair, the Chief Marshal and head of the police. The members of the Board shall employ all the necessary police and gatekeepers.

Art. 9. The Secretary shall keep a true record of the proceedings. He shall conduct all correspondence on behalf of the society, except when otherwise directed by the President. He shall, by himself and assistants by him appointed, arrange the details of the entries, tickets and enroll the names of committees and judges of the State Fair, receive and record the various reports of the awarding committees, fill out and deliver all diplomas and certificates. It shall be the duty of the Secretary to condense the County Agricultural reports for each year into one volume and superintend the publishing of the same. He shall audit and file all accounts against the Board; draw orders in favor of the proper persons on the Treasurer for the amount; but orders shall not be drawn payable to order or bearer, but to the name of the party alone or his agent. He shall make an annual report, showing amount of all orders upon the treasury, and shall perform such other duties as the best interests of the society may demand; but he is at all times subject to the direction and control of the State Board.

Art. 10. At the annual meeting of the Board the salaries of the Treasurer, Secretary and Superintendent shall be fixed for the ensuing year; Provided, That said Board may, in their discretion, at any meeting of said Board, make said officers an additional allowance for extra services.

Art. 11. That no compensation shall be allowed to delegates attending the annual meetings of the State Board; nor shall the members of the State Board-elect be paid any sum of money, as compensation or otherwise, except by order of the Board-elect.

Art. 12. The State Board may adjourn from time to time, or they may be called together by the Secretary, by order of the President, by a written notice to each member, enclosed by mail, and a notice of such meeting published in two or more newspapers of general circulation, in the city of Indianapolis; and all meetings so held by adjournment, or calls, shall be deemed regular and legal.

Art. 13. Any alteration or amendment to this Constitution may be made at the annual meeting of the State Board, two-thirds of all the members voting for such amendment.

Art. 14. The following standing committees shall be appointed by the President, to whom all matters of business coming up for reference under their particular heads shall be referred, unless otherwise specially directed by the Board:

1. Finance and Claims.
2. Rules and Regulations.
3. Fair Grounds.
4. Unfinished Business.
5. Geological Survey—Executive Committee, *ex-officio*.
6. Premium List.

AMENDMENTS TO THE CONSTITUTION.

At the May meeting in 1851, certain rules, embracing ten sections, for the government of county agricultural societies, were adopted by the Board of Agriculture, as required in Section 1 of the statute laws enacted by the Legislature of Indiana for the "Encouragement of Agriculture," approved February 17, 1852.

At the February meeting of 1868 the rules were found inexpedient and were repealed, and the following resolutions, submitted by the Committee on Rules and Regulations, were adopted:

Resolved, That all county and district societies shall be organized and governed by the laws of the State of Indiana in regard to agricultural societies, and especially under the act passed by the Legislature and approved February 17, 1852.

Resolved, That all societies so organized will be entitled to send delegates to this Board (State Board of Agriculture) at its annual meetings, and will be received and acknowledged upon the presentation of their reports and credentials, and compliance with the laws as legally organized societies.

PROCEEDINGS
OF THE
Indiana State Board of Agriculture

The Indiana State Board of Agriculture met in its rooms in the State House, January 6, 1903, pursuant to the call of the President.

There were present, Hon. M. S. Claypool, President; Hon. John L. Thompson, Vice-President; Charles Downing, Secretary; J. W. Lagrange, Treasurer; E. H. Peed, General Superintendent, and the following members of the Board, viz:

First District—John C. Haines.

Second District—Mason J. Niblack.

Third District—E. S. Tuell.

Fourth District—John Tilson.

Fifth District—H. L. Nowlin.

Sixth District—Knode Porter.

Seventh District—David Wallace.

Eighth District—Sid Conger.

Ninth District—W. T. Beauchamp.

Eleventh District—M. S. Claypool.

Twelfth District—Wm. M. Blackstock.

Thirteenth District—John L. Thompson.

Fourteenth District—Joe Cunningham.

Fifteenth District—C. B. Benjamin.

Sixteenth District—James E. McDonald.

Mr. John C. Bridges of the 10th District was absent.

On motion of Mr. James E. McDonald, the Board adjourned sine die.

CHARLES DOWNING,
Secretary.

MEETING OF DELEGATE BOARD.

The fifty-first annual meeting of the Delegate Board of the Indiana State Board of Agriculture met in the rooms of the Indiana State Board of Agriculture in the State House, in the city of Indianapolis, Indiana, on Tuesday, January 6th, 1903, at 10 o'clock a. m., pursuant to the law governing said Indiana State Board of Agriculture.

There were present, Hon. M. S. Claypool, President; Hon. John L. Thompson, Vice-President; Charles Downing, Secretary, and E. H. Peed, General Superintendent, and the following members of the Board:

First District—John C. Haines.

Second District—Mason J. Niblack

Third District—E. S. Tuell.

Fourth District—John Tilson

Fifth District—H. L. Nowlin.

Sixth District—Knode Porter.

Seventh District—David Wallace.

Eighth District—Sid Conger.

Ninth District—W. T. Beauchamp.

Eleventh District—M. S. Claypool.

Twelfth District—Wm. M. Blackstock.

Thirteenth District—John L. Thompson.

Fourteenth District—Joe Cunningham.

Fifteenth District—C. B. Benjamin.

Sixteenth District—James E. McDonald.

Mr. John C. Bridges, member for the Tenth District, was absent.

There were also present a number of delegates, who presented their certificates of election when the meeting was declared open by the President.

Hon. C. A. Bookwalter, Mayor of the city of Indianapolis, was introduced to the meeting by the President, and spoke as follows:

Mr. President and Fellow Farmers:

I feel that I have just as much right to address you by that title as have Messrs. Niblack, Wallace, McDonald and some of the others who have no more calouses on their hands from gripping the plow-handle than I have. Especially am I entitled to so address you, because I received my first introduction to the State of Indiana on an eighty-acre farm about six miles north of the town of Wabash, and some of the pleasantest years of my life were spent upon that farm, especially pleasant because I left the farm long before I was old enough to do anything else than carry water.

It is hardly necessary or incumbent upon anyone representing the city of Indianapolis to assure the members of this association of the fact that they are welcome to Indianapolis. I believe that the people of Indianapolis, as well as all the people of the State of Indiana, are under a lasting debt to the men who, by their energy, have in the years gone by made the State Association what it has proven to be. We of Indianapolis, if there is a special benefit to be derived from your labors, have the opportunity to enjoy that benefit without paying the tax which the balance of our fellow citizens in Indiana must pay in order to reach Indianapolis and enjoy the result of your labors. Hence I say that it is hardly necessary for the people of this city in any way to assure you of the fact that you are welcome in their midst.

We believe here that the State institutions should be a source of pride to every citizen in Indiana. I know not what projects this State Board has to present at this session of the General Assembly, but as one citizen of Indianapolis and of Indiana I do trust that before this General Assembly shall have adjourned the people of the State of Indiana will have had secured to them the magnificent grounds which are now being used and held under lease by the State Board of Agriculture.

My friends, you are welcome. I do not intend to offer you the keys of the city, for the reason that we do not keep our city locked against men capable of conducting themselves so as not to bring discredit upon the communities they represent; but we have thrown open the doors of the city of Indianapolis, and trust that your stay in our midst will be pleasant and profitable.

The Secretary read a letter from Governor Durbin announcing that he could not be present at the session, owing to pressure of business connected with the opening of the Legislature.

Mr. Claypool, President of the Board, requested Mr. John L. Thompson, Vice-President, to take the chair, and addressed the meeting as follows;

PRESIDENT'S ADDRESS.

To the Members of the State and Delegate Boards of Agriculture:

Gentlemen—You have, during the past year, had a great deal of literature about the State Board, and its early history, for your information. So much has been written, that at this time it is hardly necessary to say more.

The State Board of Agriculture was created by an act of the Legislature of 1851, and held its first fair in the month of October, 1852. It came into existence through the efforts of some of Indiana's best men, with possibly all the necessary display befitting an occasion so commendable, so full of hope for the betterment of the agricultural and live stock interests of the State. The early efforts of the members of the State Board met with varied success. At no time in the history of the Board have their efforts received that measure of success they so justly deserved. Even in the very beginning we find their admission receipts were inadequate to meet the expense of putting on the first fair. However, this did in nowise interfere with its usefulness nor retard its growth. From its first exhibit the State Fair has developed, until it now occupies a position second to no State Fair in the country.

During the past year the State Board of Agriculture celebrated its fiftieth anniversary, the golden jubilee of its existence. The Board left nothing undone; spared neither time nor expense to make the occasion a memorable one. The meeting was a most successful one. The plans were laid for the greatest financial success ever attained by the State Board, but the elements were against us, and we had to content ourselves with "what might have been" and look to the future for some of those "balmy days" upon which the State Fair was launched.

You have been told from year to year, since we came into possession of our new grounds, of the great wealth of buildings and equipments we hold. You have listened to those beautiful word pictures until you have about brought yourselves to believe they were real.

Nothing has ever been said to you of the temporary nature of those equipments. You have never been told of their many architectural shortcomings. You have been impressed with the idea of their stability. After ten years of use we find ourselves face to face with entirely different conditions. Instead of the conditions improving, as they should be, with our surroundings, time is leaving its marks of decay everywhere, until we have reached that point, that it requires from six thousand to ten thousand dollars to keep our buildings in repair that we may hold our annual meetings in them. It looks like a wanton waste of money for a State Fair in a great State, full of riches like this State, to be expending eight or ten thousand dollars each year in repairs on temporary buildings, such as we have.

What do we need? To make our plant in keeping with our sister States, and worthy of as good a State as Indiana, our wants are many. We need money and plenty of it. Then all things may be added unto us. We need permanent buildings suitable for their purposes, to stop the constant drain upon our resources. A complete water system for the benefit and health of all. A park and landscape system to beautify and adorn the grounds until they shall become the garden spot of Indiana. Steel underpinning under our grandstand, with cement floor, that we may derive some revenue from what is now unproductive property, and the liability of destruction be diminished. We need a large coliseum for our stock show, and such other purposes as buildings of that nature can be used for. It is a disgrace to every citizen of the State of Indiana, and we feel it keenly, to invite the best exhibitors in the world to come to our State Fairs and be compelled to make their exhibits in the rain. Our mile track, that has a reputation among the best, and that we know to be the very best when the rains defer to our wishes, needs resoiling, and it should be done in the near future with proper and careful oversight. We have done everything to popularize the track. Have built a half-mile track in the infield, for the many known benefits such equipments bring.

When we look around us and see what other States are doing for their State Fairs, and in fact for all their agricultural societies, and knowing how those things have been brought about, we feel that the State Board of Agriculture of Indiana, while it has always been free from political tendencies or influences, should give the body politic just one political twist now that party lines are almost obliterated, and that sixty-five per cent. of the voting population of Indiana are of the farm or directly interested in the farm, and should and must have recognition.

Our friends over in Ohio are having all the good things that are going. They have a very superb plant, substantial and beautiful in all its details, a credit to any State. The Legislature of Ohio gave them \$260,000 for the construction of buildings. The citizens are all proud of their holdings, and not a word of objection has ever been raised.

What have they done over among our friends in Illinois? They have received \$510,500 for the purchase of grounds and construction of buildings, and a large annual appropriation for the maintenance of the office and payment of premiums. They have a grand plant, and the people are with them in the upbuilding of a most creditable and complete plant, worthy of a great State and progressive people. In the States of Michigan, Wisconsin, Minnesota and Iowa they are properly cared for.

Indiana to us is the best State among the great Middle States, from location, natural resources, and diversified interests; her farmers and stock growers are afraid to ask for what is justly due them.

We feel that the Legislature of Indiana should make an appropriation of sufficient money to carry on and take care of Indiana's exhibit at the

St. Louis Exposition. The great benefits of an exhibition of this nature are very apparent to the most casual observer.

Indiana occupies a proud position among the agricultural and live stock interests of the world, a position she has attained through honorable competition and the unquestioned merit of her products. Her breeders of live stock have compelled the whole world to acknowledge the superiority of their herds and flocks. Their cattle, sheep and swine have been blue ribbon winners for years in the hottest competition that could be brought against them. The horse interests of the State have for many years played a prominent part throughout the racing world. The last few years her horses have been particularly prominent on the turf. It is for Indiana's glory to produce the only, the unbeaten, the unconquered, the king of his kind, "Dan Patch."

While Indiana's great breeders of live stock are out battling for supremacy and bringing home honors to their State, we should be doing everything possible for us to do toward building up a State home for exhibits second to none of its kind.

The State Board of Agriculture does a great many things, and has to do a great many things it would not do, if its members felt free to follow their own inclinations, their best judgment. To illustrate we are paying 3 and 17-100 per cent. premiums on all its insurance. Do you consider that a good business proposition? Would you pay such an exorbitant rate on so good a risk? No. We can not get away from things of this kind. During the past ten years we have paid over \$20,000 in premiums and have had a loss of \$1,100 during this time; \$600 less than last year's annual premiums. This is only one of many of a similar nature.

The reports of our Secretary and Treasurer are complete, and will show to you fully all receipts and expenditures of money.

The year 1902 was a particularly harmonious one in the management of the State Board. We feel very grateful to the public for their generous support, and I take this occasion to thank the citizens of Indiana for their many indications of loyalty and good will toward the State Fair. To the members and officers of the Board I have only words of highest commendation for their every efforts in helping to make the golden jubilee of the State Board the great success it was, under conditions so adverse.

On motion of Mr. McDonald, the President's address was referred to the following committee: Mason J. Niblack, Robert Mitchell and Frank P. Johnson.

The President, Mr. Claypool, resumed the chair and appointed the following committees:

Auditing Committee—John Tilson, of Franklin; John C. Haines, of Rockport, and Mason J. Niblack, of Vincennes.

Credentials—M. A. McDonald, of West Lebanon; A. G. Holcombe, of Ft. Branch, and E. S. Tuell, of Corydon.

The Secretary presented his report of receipts and disbursements for the year ending January 5, 1903, as follows:

SECRETARY'S REPORT.

Indianapolis, Ind., January 6, 1903.

To the President and Members of the Indiana State Board of Agriculture:

Gentlemen—I herewith submit a report of the receipts and disbursements of the Indiana State Board of Agriculture for the year ending January 5, 1903, as follows, to wit:

Receipts.

Balance in treasury January 6, 1903.....	\$6,546 10
Appropriation from the State.....	10,000 00
Rents from track, stables and grounds.....	1,647 83
Stall and pen rents.....	1,554 51
Privileges	4,835 50
Admissions	34,612 75
Entry fees	2,780 90
Exhibitors tickets	770 00
Insurance on hog barns.....	911 00
Special premiums	5,496 50
Total	\$69,155 09

Disbursements.

Members' per diem.....	\$3,669 35
Salaries of officers.....	3,323 50
Construction, labor, repairs, etc.....	16,250 38
Furniture and tools.....	66 34
Insurance	1,645 91
Postage, telegraph and telephone.....	494 89
Freight and express.....	189 70
Printing, stationery and office supplies.....	1,984 61

Advertising	5,787 46
Expert judges	1,137 50
Police	559 50
Assistant superintendents	1,315 78
Fair supplies	1,956 71
Premiums	23,170 75
Sousa and his band.....	3,500 00
Special tickets redeemed.....	149 00
Music	315 00
Gas	79 60
Monon guaranty	230 95
Miscellaneous	1,533 44
Balance	1,794 63
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Total	\$69,155 09

The following is a list of the warrants issued during the year ending January 5, 1903, which are outstanding at this date:

No. 164. Dana Democrat	\$1 00
No. 214. Middletown Advance	2 00
No. 219. Muncie News	4 00
No. 245. Sheridan Air Line News.....	1 00
No. 267. Winchester Republican	1 00
No. 420. Moorman & Miller.....	17 00
No. 436. New Telephone Company.....	67 75
No. 473. D. B. Winchester.....	39 00
No. 474. Indianapolis Gas Company.....	28 00
No. 475. D. B. Winchester.....	31 00
No. 476. Central Union Telephone Company.....	33 50
No. 477. Western Union Telegraph Company.....	50
No. 479. Chicago Horseman	8 11
No. 481. Johnson, Woodbridge Company.....	2 75
No. 482. C. W. Meikel Company.....	3 95
No. 483. Balke, Krauss Company.....	89 42
No. 484. Lilly & Stalnaker Company.....	4 36
No. 485. Marion County Labor Company.....	10 00
No. 487. Baber & Company.....	2 50
No. 488. Mrs. J. W. King, Secretary.....	50 00
No. 489. Am. Express Company.....	18
No. 492. M. S. Claypool.....	20 80
<hr/>	
Total	\$418 62

STATEMENT OF THE FAIR OF 1902.

Receipts.

Admissions	\$34,612 75
Privileges	4,835 50
Entry fees	2,780 90
Stall and pen rents.....	1,554 51
Special prizes	5,496 50
Exhibitors' tickets	770 00
Total	\$50,050 16

Disbursements.

Premiums—	
Speed horses	\$2,915 00
Special	4,700 00
Show horses	2,516 00
Cattle	5,377 00
Sheep	924 00
Swine	2,132 00
Poultry	1,214 00
Fruits	583 75
Flowers	316 00
Dairy products	168 00
Agriculture	958 50
Art	1,241 25
Table luxuries	135 75
Special attractions, Sousa's band.....	3,500 00
Members' per diem and mileage.....	3,669 35
Officers' salaries	3,323 50
Postage, telegraph and telephone (year).....	494 89
Freight and express (year).....	189 70
Printing, stationery and office supplies (year).....	1,984 71
Advertising	5,787 46
Expert judges	1,137 59
Police	559 50
Assistant superintendents	1,315 78
Supplies for fair.....	1,956 71
Special tickets redeemed.....	149 00
Music for fair	315 00
Railroad guaranty	230 95
Profits of the year.....	2,254 87
Total	\$50,050 16

Respectfully submitted,

CHARLES DOWNING,
Secretary State Board of Agriculture.

The Treasurer, Mr. J. W. Lagrange, then submitted his report as follows:

TREASURER'S REPORT.

To the President and Members of the Indiana State Board of Agriculture:

Gentlemen—I have the honor to submit the annual report of the Treasurer of the Indiana State Board of Agriculture for the year ending January 5, 1903:

Receipts.

Forward from 1901.....	\$6,546 10
Appropriation from the State.....	10,000 00
Admissions	34,612 75
Received from Secretary Downing (year).....	17,996 24
	<hr/>
Total	\$69,155 09

Disbursements.

On warrants of President and Secretary.....	\$66,941 84
Outstanding warrants	\$418 62
Balance	1,794 63
	<hr/>
	2,213 25
	<hr/>
Total	\$69,155 09

I herewith file warrants paid by me.

Respectfully submitted,

J. W. LAGRANGE,

Treasurer Indiana State Board of Agriculture.

On motion of Mr. J. E. McDonald, duly seconded, the reports of the Secretary and Treasurer were referred to the Auditing Committee.

Department Superintendents filed their reports.

On motion, Mr. Robert Mitchell, of Princeton, Mr. Sid Conger, of Shelbyville, and David Wallace, of Indianapolis, were appointed a committee to draft a resolution to be presented to the Governor

and the Legislature, looking toward taking care of the Indiana exhibit at the Louisiana Purchase Exposition, to be held at St. Louis in 1904.

On motion of Mr. Cunningham, duly seconded, the meeting adjourned until 9:30 o'clock tomorrow morning.

At 2:30 o'clock Tuesday, January 6, 1903, the Indiana State Association of Fair Managers held their annual meeting in Room No. 12 State House.

The Delegate Board of the Indiana State Board of Agriculture met in the rooms of the Indiana State Board of Agriculture on the 7th day of January, 1903, pursuant to adjournment, with Hon. M. S. Claypool, President, in the chair.

All members of the Indiana State Board of Agriculture except Mr. John C. Bridges were present on roll call, as well as the Secretary, Treasurer and General Superintendent of the Board.

The delegates attending the session on yesterday and a number of others were present.

Mr. John Tilson, Chairman of the Auditing Committee, submitted the following report, which was concurred in by the meeting, upon motion duly seconded.

Indianapolis, January 6, 1903.

Mr. President and Members of the Delegate State Board of Agriculture:

Your committee to whom was referred the reports of the Secretary and Treasurer, with the books and receipts and vouchers, beg leave to report that they have carefully examined the same and find them correct.

JOHN TILSON,
JOHN C. HAINES,
MASON J. NIBLACK,
Auditing Committee.

Mr. Robert Mitchell, of the Committee on President's Address, submitted the following report, which was concurred in:

Indianapolis, Indiana, January 7, 1903.

Mr. President and Members of the State and Delegate Board of Agriculture:

Your committee to whom was referred the President's address beg leave to make the following report:

We have carefully looked over the President's address and the plain business-like statements contained in it in reference to the conditions of the buildings on the State Fair Grounds, and other matters embodied in the address, and we fully concur in all its recommendations.

Respectfully submitted by the committee,

MASON J. NIBLACK,
ROBERT MITCHELL,
FRANK P. JOHNSON,

Committee.

The following report of the Committee on Resolutions on the Louisiana Purchase Exposition was read, and upon motion of Mr. Robert Mitchell, was concurred in by the Board:

Mr. President and Members of the State and Delegate Board of Agriculture:

We, your committee appointed to formulate a resolution expressive of the wish of the delegate members of the Board from the different districts of the State now in session, submit the following resolution:

Resolved, That we ask the Legislature now in session to appropriate an amount of money sufficient to make a grand display of the agricultural and mineral resources of the State at the great St. Louis World's Fair and Exposition to be held there during the summer of 1904; and be it further

Resolved, That instead of a State building, such as was erected by Indiana at the Columbian Exposition, that a building be erected on a site selected by a committee appointed by the Governor, to visit the exposition grounds at St. Louis, said building to be for the express purpose of showing the agricultural, mining and such other exhibits from Indiana, not provided for by the exposition company at St. Louis. The live stock interests will be provided for by the company with suitable buildings.

Respectfully submitted by the committee,

ROBERT MITCHELL,
SID CONGER,
DAVID WALLACE,

Committee.

The Committee on Credentials made the following report, which was concurred in on motion of Mr. M. A. McDonald, Chairman of the Committee:

REPORT OF COMMITTEE ON CREDENTIALS.

To the President and Members of the Indiana State Board of Agriculture and Delegates to the Indiana State Board of Agriculture:

Gentlemen—We, the undersigned Committee on Credentials, beg leave to submit the following list of delegates who are entitled to vote in this body:

FIRST DISTRICT.

Member of the Board, John C. Haines.

<i>Name of Fair.</i>	<i>Name of Delegate.</i>	<i>Postoffice Address.</i>
New Harmony	Geo. C Taylor	New Harmony.
Boonville	C. Pelzer	Boonville.
Rockport	John C. Haines	Rockport.
Chrisney	John C. Haines	Rockport.
Oakland City	Robert Mitchell.....	Princeton.
Evansville	Sid Conger	Shelbyville.
Gibson Co. H. and A. Soc...	A. C. Holcomb	Ft. Branch.

SECOND DISTRICT.

Member of the Board, Mason J. Niblack.

Vincennes	Dr. M. M. McDowell	Vincennes.
Huntingburg	John C. Haines	Rockport.
Marengo	J. W. Bird	Marengo.

THIRD DISTRICT.

Member of the Board, Mr. E. S. Tuell.

Corydon	Sam T. Wolfe	Corydon.
Floyd Co. H. and A. Soc...	C. W. Brubeck	Georgetown.
New Albany	Robert Mitchell.....	Princeton.
Salem	H. C. Hobbs	Salem.

FOURTH DISTRICT.

Member of the Board, Mr. John Tilson.

Bedford	Geo. W. McDaniel	Bedford.
Franklin	John Tilson	Franklin.
	Newt. Brown	Franklin.
Johnson Co. Hort. Society ..	C. R. Worrall	Bloomington.
Nashville	M. B. Wilson	Nashville.
Bloomington		

FIFTH DISTRICT.

Member of the Board, Mr. H. L. Nowlin.

<i>Name of Fair.</i>	<i>Name of Delegate.</i>	<i>Postoffice Address.</i>
Madison Fair	Frederick Glass	Madison.
East Enterprise	F. M. Miller	East Enterprise.
Osgood	E. A. Creigmile	Osgood.
Lawrenceburg.....	H. L. Nowlin.....	Lawrenceburg.
North Vernon.....	E. H. Tripp	North Vernon.
Madison Grange Jubilee	John V. Connolly	Madison.

SIXTH DISTRICT.

Member of the Board, Mr. Knode Porter.

Columbus.....	Joe R. Overstreet	Franklin.
Rushville	Edw. Crosby	Rushville.
Liberty	Milton Maxwell.....	Liberty.
Hagerstown.....	Knode Porter	Hagerstown.
Richmond	Knode Porter.....	Hagerstown.
Wayne Co. A. and H. Soc...	W. S. Ratliff.....	Richmond.

SEVENTH DISTRICT.

Member of the Board, Mr. Sid Conger.

Elwood.....	Francis M. Harbite	Elwood.
Anderson	Thomas B. Orr.....	Anderson.
Greenfield	John E. Dye	Greenfield.
Middletown.....	E. M. Cooper	Middletown.
New Castle	W. L. Risk	New Castle.
Shelbyville	B. F. Swain	Shelbyville.
Sheridan	Calvin Sturdevant.....	Sheridan.
Madison Co. Hort. Ass'n ...	Walter S. Ratliff.....	Richmond.

EIGHTH DISTRICT.

Member of the Board, David Wallace.

Indianapolis		
State Hort. Society	W. B. Flick	Lawrence.
Marion Co. H. and A. Soc ..	Frank P. Johnson.....	Howland.

NINTH DISTRICT.

Member of the Board, Mr. W. T. Beauchamp.

Brazil	W. T. Beauchamp.....	Terre Haute.
Terre Haute	W. T. Beauchamp.....	Terre Haute.
Bridgeton.....	A. R. Allison	Bridgeton.
Newtown	G. W. Parnell	Newtown.
Covington	W. H. Mills	Covington.
Cayuga	M. A. McDonald.....	West Lebanon.
Newport.....	M. A. McDonald.....	West Lebanon.
Riley.....	W. T. Beauchamp.....	Terre Haute.

TENTH DISTRICT.

Member of the Board, Mr. John C. Bridges.

<i>Name of Fair.</i>	<i>Name of Delegate.</i>	<i>Postoffice Address.</i>
Danville	Chas. L. Bowen	Danville.
Crawfordsville	Henry Davidson	Crawfordsville.
Lebanon	Riley Hauser	Lebanon.
Putnam Co. Fair Ass'n	A. R. Allison	Bainbridge.
Bainbridge Driving Club....	A. R. Allison	Bainbridge.

ELEVENTH DISTRICT.

Member of the Board, Mr. M. S. Claypool.

Muncie	C. H. Anthony	Muncie.
Winchester	L. L. Moorman	Winchester.
Huntington	John L. Thompson	Gas City.
Portland	John A. M. Adair	Portland.
Berne	T. H. Harris	Berne.

TWELFTH DISTRICT.

Member of the Board, Mr. W. M. Blackstock.

Boswell	Chas. W. Travis	Lafayette.
Lafayette	Chas. W. Travis	Lafayette.
Kentland	H. A. Strohm	Kentland.
Lafayette Racing Ass'n	Chas. W. Travis	Lafayette.
West Lebanon	M. A. McDonald	West Lebanon.

THIRTEENTH DISTRICT.

Member of the Board, Mr. John L. Thompson.

Frankfort	Jos. Heavilon	Frankfort.
Frankfort Racing Ass'n	Jos. Heavilon	Frankfort.
Marion	G. D. Kimball	Marion.
Fairmount	C. A. Fletcher	Fairmount.
Swayzee	E. C. King	Swayzee.
Kokomo Driving Park	H. H. Leach	Kokomo.
Tipton	Wm. L. Berryman	Tipton.
North Manchester	John L. Thompson	Gas City.

FOURTEENTH DISTRICT.

Member of the Board, Mr. Joseph Cunningham.

Rochester	A. Stinson	Rochester.
Logansport	J. M. Elliott	Logansport.
Cass Co. Hort. Society	T. M. Kistler	Logansport.
Converse	Joe Cunningham	Peru.
Logansport Driving Club....	J. T. Tomlinson	Logansport.

FIFTEENTH DISTRICT.

Member of the Board, Mr. C. B. Benjamin.

<i>Name of Fair.</i>	<i>Name of Delegate.</i>	<i>Postoffice Address.</i>
Bourbon	B. W. Parks	Bourbon.
Bremen	Fred Wheeler	Crown Point.
Laporte	J. E. Howell	Laporte.
Valparaiso	John Brodie	Valparaiso.
Crown Point	Fred Wheeler	Crown Point.

SIXTEENTH DISTRICT.

Member of the Board, Mr. Jas. E. McDonald.

Ft. Wayne	Capt. A. W. Kelsey	Ft. Wayne.
Ft. Wayne Driving Club	W. A. Johnson	Ft. Wayne.
Angola	C. C. Carlin	Angola.
Kendallville	J. S. Conlogue	Kendallville.
Noble Co Hort. Soc	W. H. Baker	Ligonier.
Lagrange Co. Hort. Soc.	J. W. Mills	Lagrange.
Ft. Wayne Fair Ass'n	Geo. V. Kell	Ft. Wayne.

Respectfully submitted,

M. A. McDONALD,

A. C. HOLCOMB,

E. S. TUELL,

Committee.

On motion, duly seconded, the Board proceeded to hear nominations for members of the Board for the Fifth, Sixth, Eighth, Ninth, Tenth, Eleventh, Twelfth and Thirteenth districts.

Fifth District.—Mr. H. B. Miller placed in nomination the name of Mr. H. L. Nowlin, of Lawrenceburg.

Sixth District.—Mr. M. A. McDonald, of West Lebanon, placed in nomination the name of Mr. Knode Porter, of Hagerstown. Mr. W. R. Pleak, of Greensburg, placed in nomination the name of Uriah Privett, of Greensburg. Mr. Milton Maxwell, of Liberty, placed in nomination the name of Mr. H. F. McMahan, of Liberty.

Eighth District.—Mr. Robert Mitchell, of Princeton, placed in nomination the name of Mr. Sid Conger, of Shelbyville. Mr. Thomas B. Orr, of Anderson, placed in nomination the name of Mr. Frank E. DeHority, of Elwood, Ind.

Ninth District.—Mr. J. J. Insley of Crawfordsville, placed in nomination the name of Mr. W. T. Beauchamp, of Terre Haute.

Tenth District.—Senator W. A. Johnson, of Crawfordsville, placed in nomination the name of Mr. John L. Davis, of Crawfordsville. Dr. Gott, of Crawfordsville, placed in nomination the name of Mr. Oscar Hadley, and Mr. Geo. W. Hanna, of ———, placed in nomination the name of Mr. Jas. U. Edwards, of Bainbridge.

Eleventh District.—Mr. C. H. Anthony, of Muncie, placed in nomination the name of Mr. M. S. Claypool, of Muncie, seconded by Senator Geo. V. Kell, of Ft. Wayne.

Twelfth District.—Mr. Geo. W. McDaniel, of Bedford, placed in nomination the name of Mr. Wm. M. Blackstock, of Lafayette.

Thirteenth District.—Mr. E. C. King, of Swayzee, placed in nomination the name of Mr. John L. Thompson, of Gas City.

On motion the Delegate Board proceeded to the election of members in the districts in which the terms of members expired and for which nominations were made.

Thereupon the President appointed the following persons as tellers: W. M. Blackstock, J. D. Williams and Geo. W. McDaniel.

And also appointed the following persons to collect the ballots, viz.: H. L. Nowlin, W. W. Morgan, C. R. Worrall and John C. Haines.

On motion of Mr. J. E. McDonald, duly seconded, the Secretary was ordered to cast the votes of the whole number of delegates for Mr. H. L. Nowlin, of Lawrenceburg, for member of the Indiana State Board of Agriculture for the Fifth District, which was accordingly done and the President declared Mr. Nowlin duly elected as such member for the term of two years.

The Board then proceeded to ballot for member for the Sixth District, which resulted as follows:

Mr. Knobe Porter received seventy-seven votes; Mr. Uriah Privett received five votes; Mr. H. F. McMahan received twenty votes.

Mr. Porter having received a majority of all the votes cast, was declared by the President duly elected as member of the Sixth District for the ensuing term of two years.

On motion of Mr. Privett the election of Mr. Porter was made unanimous.

The Board then proceeded to ballot for member for the Eighth District, which resulted as follows:

Mr. Sid Conger received seventy-seven votes; Mr. F. E. DeHority received twenty-five votes.

Mr. Conger having received a majority of all the votes cast, the President declared him duly elected member for the Eighth District for the ensuing two years.

On motion of Mr. J. J. Insley, of Crawfordsville, duly seconded and carried, the Secretary was directed to cast 102 votes for Mr. W. T. Beauchamp, of Terre Haute, for member for the Ninth District. Which was accordingly done, and the President declared Mr. Beauchamp duly elected a member of said district for the ensuing two years.

The Board then proceeded to ballot for member for the Tenth District, which resulted as follows:

Mr. W. F. Hulet received thirty-six votes; Mr. John L. Davis received ten votes; Mr. Oscar Hadley received fifty votes; Mr. Jas. U. Edwards received nine votes.

No candidate having received a majority of all the votes cast, the President declared there was no election and to prepare for another ballot.

Result of second ballot:

Mr. W. H. Hulet received thirty-five votes; Mr. Oscar Hadley received sixty-five votes; Mr. Jas. U. Edwards received four votes.

Mr. Hadley having received a majority of all the votes cast, the President declared him duly elected member of the Board for the Tenth District for the ensuing two years.

On motion of Mr. J. E. McDonald, seconded by Col. Wallace, the Secretary of the Board was directed to cast 104 votes for Mr. M. S. Claypool, of Muncie, for member of the Board for the Eleventh District, which was accordingly done, and the President declared Mr. M. S. Claypool duly elected member of the Board for the ensuing two years.

On motion of Mr. J. E. McDonald, duly seconded by Colonel Wallace, the Secretary of the Board was directed to cast 104 votes for Mr. W. M. Blackstock, of Lafayette, for member of the Board for the Twelfth District, which was accordingly done, and the President declared Mr. Blackstock duly elected member of the Board for said Twelfth District for the ensuing two years.

On motion of Mr. McDonald, duly seconded, the Secretary of the Board was directed to cast 104 votes for Mr. John L. Thompson, of Gas City, for member of the Board for the Thirteenth District, which was accordingly done, and the President declared Mr. Thompson duly elected member of the Board for the said Thirteenth District for the ensuing two years.

On motion of Mr. McDonald, the Delegate Board meeting adjourned sine die.

CHARLES DOWNING,
Secretary.

The Indiana State Board of Agriculture met pursuant to the call of the President, M. S. Claypool, at the rooms of the Board in the State House, in the city of Indianapolis, Indiana, on the 7th day of January, 1903, at 2:30 o'clock p. m., for the purpose of closing up the business of the Board before organizing the new Board.

Upon roll call the following members and officers responded:

First District—John C. Haines, Rockport.

Second District—Mason J. Niblack, Vincennes.

Third District—E. S. Tuell, Corydon.

Fourth District—John Tilson, Franklin.

Fifth District—H. L. Nowlin, Lawrenceburg.

Sixth District—Knode Porter, Hagerstown.

Seventh District—David Wallace, Indianapolis.

Eighth District—Sid Conger, Shelbyville.

Ninth District—W. T. Beauchamp, Terre Haute.

Eleventh District—M. S. Claypool, Muncie.

Twelfth District—Wm. M. Blackstock, Lafayette.

Thirteenth District—John L. Thompson, Gas City.

Fourteenth District—Joe Cunningham, Peru.

Fifteenth District—C. B. Benjamin, Leroy.

Sixteenth District—J. E. McDonald, Ligonier.

M. S. Claypool, President; John L. Thompson, Vice-President; Charles Downing, Secretary; J. W. Lagrange, Treasurer; E. H. Peed, General Superintendent.

Mr. John C. Bridges, member of the Board for the Tenth District was absent.

There being no business brought before the Board, on the motion of Mr. J. E. McDonald, the Board adjourned sine die.

CHARLES DOWNING,
Secretary.

The Indiana State Board of Agriculture met in its rooms at the State House, in the city of Indianapolis, Indiana, on the 7th day of January, 1903, at 3 o'clock p. m., pursuant to the call of some of the members of said Board, for the purpose of reorganizing for the year 1903.

The following members were present:

First District—John C. Haines, Rockport.

Second District—Mason J. Niblack, Vincennes.

Third District—E. S. Tuell, Corydon.

Fourth District—John Tilson, Franklin.

Fifth District—H. L. Nowlin, Lawrenceburg.

Sixth District—Knode Porter, Hagerstown.

Seventh District—David Wallace, Indianapolis.

Eighth District—Sid Conger, Shelbyville.

Ninth District—W. T. Beauchamp, Terre Haute.

Tenth District—Oscar Hadley, Danville.

Eleventh District—M. S. Claypool, Muncie.

Twelfth District—Wm. M. Blackstock, Lafayette.

Thirteenth District—John L. Thompson, Gas City.

Fourteenth District—Joe Cunningham, Peru.

Fifteenth District—C. B. Benjamin, Leroy.

Sixteenth District—J. E. McDonald, Ligonier.

On motion of Mr. Claypool, duly seconded and carried, Mr. Jas. E. McDonald was elected temporary Chairman of the meeting.

Nominations for President of the Board were called for, and thereupon Mr. Niblack placed in nomination for President of the Board for the ensuing year the name of Mr. John L. Thompson, of Gas City, which nomination was seconded by Mr. Haines. No further nominations were made for President.

Thereupon, on motion, the Secretary was instructed to cast the entire number of votes of the Board for Mr. Thompson for President, which was accordingly done, and the Chairman declared Mr.

Thompson duly elected President of the Indiana State Board of Agriculture for the ensuing year.

Mr. Conger placed the name of Mason J. Niblack in nomination for Vice-President of the Board, and on motion Mr. Niblack's election was made unanimous. Thereupon the President declared Mr. Niblack duly elected Vice-President of the Board for the ensuing year.

Mr. Tilson placed in nomination the name of Mr. J. W. Lagrange, of Franklin, for Treasurer of the Board; and, upon motion of Colonel Wallace, duly seconded, his election was made by acclamation. And thereupon the President declared Mr. Lagrange duly elected Treasurer of the Board for the ensuing year.

Colonel Wallace placed in nomination the name of Charles Downing, of Greenfield, for Secretary, of the Board for the ensuing year. And, on motion of Mr. Claypool, the election of Mr. Downing was made by acclamation. And the President thereupon declared Mr. Downing duly elected Secretary of the Board for the ensuing year.

Colonel Wallace placed in nomination the name of Mr. E. H. Peed, of New Castle, for General Superintendent for the ensuing year. And on motion Mr. Peed's election was made by acclamation. Thereupon the President declared him duly elected General Superintendent for the ensuing year.

On motion of Mr. Niblack, duly seconded and carried, the President was authorized and empowered to select and name the members of the Executive Committee for the ensuing year.

On motion of Mr. McDonald, it was ordered that all unfinished business of the Board be referred to the Executive Committee for action.

Mr. Niblack moved that when the Board adjourned, that it adjourn to meet on the call of the President.

Motion carried.

Mr. Beauchamp moved that a committee on the revision of the premium list be appointed by the President.

Motion carried.

Mr. Niblack introduced and moved the adoption of the following resolution:

Whereas, State fairs are held for the purpose of encouraging meritorious exhibits and presenting the same to the public to the best advantage, to the end that profitable sales may result from such displays; and

Whereas, The principal object of the exhibitor in making displays at our State fairs is to find a more profitable market for animals and articles entered for competition; therefore be it

Resolved, That every possible and reasonable assistance be rendered exhibitors by this Board to find the best market in connection with our State Fair for their exhibits either in the way of public or private sales as they may elect.

Resolved, That the superintendents of the live stock departments be and are hereby instructed to heartily co-operate with breeders in the holding of public and other sales, to the end, that not only the exhibits may be advertised to the best advantage but sold to the best advantage to the large crowds that usually attend our fair.

Seconded by Mr. McDonald.

A vote being taken on the adoption of the resolution it was declared adopted by the unanimous vote of the Board.

A communication from Mr. E. N. Moore, Secretary of the National Stock Exhibitor's Union, was read.

A letter from Mr. W. M. Savage, of Minneapolis, was read, concerning Dan Patch and an exhibition to be given by him at the coming fair, and on motion the whole matter was referred to the Executive Committee.

On motion, the Secretary was instructed to negotiate with Mr. Sousa's manager, with a view of employing Sousa and his band to give concerts during the coming fair.

The President announced the appointment of the Executive Committee for the ensuing year as follows: Messrs. Claypool, Conger, McDonald, Wallace and Niblack.

On motion, the Board adjourned to meet on call of the President.

CHARLES DOWNING,
Secretary.

EXECUTIVE COMMITTEE MEETING, JANUARY 8, 1903.

The new Executive Committee of the Indiana State Board of Agriculture met pursuant to the call of President Thompson at the rooms of the Indiana State Board of Agriculture in the State House, in the city of Indianapolis, Indiana, on Thursday, January 8, 1903, at 1 o'clock p. m.

There were present Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; and Messrs. Claypool, Conger, Wallace and McDonald.

On motion of Mr. Niblack, it was ordered that when the Board adjourns, that it adjourn to meet on Wednesday, January 21, 1903.

On motion, the Secretary was instructed to notify the officers of the Indianapolis Racing Association to be present at the next meeting of this committee with an application for a contract for the use of the State Fair Grounds for a race meeting.

On motion of Mr. Niblack it was ordered that Mr. Claypool have charge of the race tracks of the Fair Grounds for the coming season.

On motion, duly seconded, the Secretary was authorized and instructed to advertise the race tracks of the Association in the Horse Review and Western Horseman, at a cost not exceeding \$25 to each paper.

The following resolution was introduced by Mr. Niblack and unanimously adopted:

Resolved, That the Executive Committee of the Indiana State Board of Agriculture does hereby heartily recommend and endorse the Honorable John L. Thompson, of Gas City, Indiana, for the position of Superintendent of the Sheep Department of the Louisiana Purchase Exposition, to be held in St. Louis, Mo., in 1904.

Mr. Thompson has been a member of our Board for the past eight years (during which time he has had charge of the Sheep Department of our fair), and is now president of our Board by unanimous choice.

Mr. Thompson is a practical sheep breeder, exhibitor and importer of extensive experience. He has judged sheep at most of the best shows in the country, including the World's Columbian, Trans-Mississippi, Pan-American and the International Live Stock Expositions, and we believe him to be in every way qualified for the position for which we recommend him.

On motion of Mr. Niblack, seconded by Mr. Claypool, Colonel Wallace was appointed a committee of one to present the above resolution to Mr. John F. Miller, of Richmond, Indiana, who is one of the commissioners for the St. Louis Exposition.

The President announced Department Superintendents for the ensuing year as follows:

Admissions—John C. Haines, Rockport.

Grand Stand—Knode Porter, Hagerstown.

Speed—M. S. Claypool, Muncie.

Heavy Horses—Wm. M. Blackstock, Lafayette.

Light Harness Horses—W. T. Beauchamp, Terre Haute.

Beef Cattle—David Wallace, Indianapolis.

Dairy Cattle and Dairy Products—Oscar Hadley, Danville.

Swine—Joe Cunningham, Peru.

Sheep—Mason J. Niblack, Vincennes.

Poultry—Sid Conger, Shelbyville.

Art—J. E. McDonald, Ligonier.

Horticulture and Table Luxuries—John Tilson, Franklin.

Agricultural—C. B. Benjamin, Leroy.

Mechanical—E. S. Tuell, Corydon.

Privileges—H. L. Nowlin, Lawrenceburg.

The Executive Committee of the Indiana State Board of Agriculture met, pursuant to adjournment, on the 21st day of January, 1903, at the rooms of the Indiana State Board of Agriculture in the State House, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Hon. Sid Conger, Hon. M. S. Claypool, Hon. David Wallace, Hon. Jas. E. McDonald, and Charles Downing, Secretary.

The minutes of the previous meeting were read and, on motion duly seconded, were approved as read.

The Indianapolis Racing Association filed and presented to the Board an application for a contract or lease for the use of the State Fair Grounds for racing purposes, which reads as follows:

Indianapolis, January 21, 1903.

Indiana State Board of Agriculture, City:

Gentlemen—The Indianapolis Racing Association hereby makes application for a contract for the use of the Indiana State Fair Grounds for the year 1903, with an option for five years on the same terms and conditions, for the purpose of giving not exceeding two meetings during the year 1903, and each year said contract or option runs.

Said race meetings will be given at a time which will not interfere with or be to the disadvantage of any exhibition or State Fairs given by the Board during the existence of said contract. The grounds to be used by the Racing Association only during the time of holding the meeting and such preparatory days as are absolutely necessary to such meeting. Said contract to protect the rights of all persons having horses in training on said grounds under contract with said Board.

Said contract also to include keeping the grounds in good condition and the race track in first-class racing condition by said Board during the meeting given by said Racing Association.

A suggestion for a contract is submitted with this application.

Very respectfully,

W. A. HOLT, Secretary.

After considering the matter fully the committee authorized the President and Secretary to enter into the following contract with said Racing Association:

This agreement entered into this 21st day of January, 1903, by and between the Indiana State Board of Agriculture and the Indianapolis Racing Association, witnesseth:

The Indiana State Board of Agriculture hereby leases to the Indianapolis Racing Association the Indiana State Fair Grounds and such buildings thereon as may be necessary for a racing meeting, such buildings to be designated by the Indiana State Board of Agriculture, for a consideration hereinafter mentioned, for the purpose of holding public horse racing exhibitions or race meetings, subject to the following restrictions, reservations, exceptions and conditions:

The Indianapolis Racing Association shall have the right to use and occupy said grounds and such buildings located thereon as may be necessary for the purpose of giving not more than two public racing exhibitions or race meetings during the year 1903, neither one of which shall be within thirty days immediately preceding or thirty days immediately following the week in which the Indiana State Fair shall be held. And neither of said race meetings shall be for a longer time than two weeks.

The Indianapolis Racing Association shall be entitled to the right to give said public race meetings only upon giving written notice to the Secretary of the Indiana State Board of Agriculture on or before the 1st day of April before beginning of any proposed public racing exhibitions that said Indianapolis Racing Association intends to hold on said fair grounds, and specifying the exact date on which said racing exhibition is intended to be held.

That at each and every public horse racing exhibition held by said Racing Association the members of the Indiana State Board of Agriculture shall have the right of access free of charge or condition to any parts of said Indiana State Fair Grounds and the buildings thereon, except such buildings as may be used for offices of said Racing Association during said race meeting. And further, at each and every public horse racing exhibition all officers, agents or other persons whom the Indiana State Board of Agriculture may deem proper to have access to said grounds for the protection of its interests, or for the doing of any work thereon, and who may be designated by writing or ticket by said Board, shall have such rights upon said Fair Grounds as said Indiana State Board of Agriculture may by writing or ticket designate.

In case the Indiana State Board of Agriculture may have leased said State Fair Grounds, or any part thereof, to any person, persons or corporation subject to the right given herein to the Indianapolis Racing Association, before receiving written notice from the Indianapolis Racing Association of its intention to hold a public horse racing exhibition on any day or days for which said grounds, or any portion thereof, shall have been leased to such person, persons or corporation in manner aforesaid, said Indianapolis Racing Association agrees to pay to the Indiana State Board of Agriculture in case such public horse racing exhibition

shall not be held by said Indianapolis Racing Association on such day or days, the sum of one hundred dollars for each of said days, less any amount which the Indiana State Board of Agriculture may have received, or may be entitled to receive, as rent for said State Fair grounds, or any portion thereof, from any person, persons or corporation for any or all of such days.

The Indiana State Board of Agriculture agrees that it will at its own expense keep the fair grounds, buildings, fences and entrances in good condition and repair during any of the meetings given by said Racing Association under this contract, and also to keep the race tracks in complete repair and in first-class condition during said meetings, weather permitting.

The Indianapolis Racing Association agrees that it will during the public racing exhibitions, demand for its use for horses entered at the meetings such speed barns only as are not occupied by the persons having horses in training on said fair grounds under contract with or permission of the Indiana State Board of Agriculture, and that it will not interfere with the trainers of horses located on said grounds during any racing meeting given by said Association.

The Indiana State Board of Agriculture agrees not to lease the Indiana State Fair Grounds to any other Racing Association or person, for racing meetings, without the consent of said Racing Association, after the notice has been given to the State Board of Agriculture as provided herein. This provision shall not be taken to mean races given by the Retail Grocers' Association or other local associations or persons giving picnics on said grounds for one day only.

It is further agreed that nothing may be construed as preventing the State Board of Agriculture from leasing said grounds for racing purposes should the said Indianapolis Racing Association fail to notify said State Board of Agriculture of their intention of holding a meeting on April 1st of each year during the continuance of said contract.

And the Indianapolis Racing Association agrees that it shall not do, or suffer to permit to be done, any lewd, immoral or illegal acts upon said State Fair Grounds during any of its public racing exhibitions or meetings.

The Indianapolis Racing Association, for consideration of the rights and privileges hereby granted, hereby agrees to pay to the Indiana State Board of Agriculture as follows:

For a four days' meeting, at the rate of one hundred dollars per day.

For a five days' meeting, the sum of four hundred and fifty dollars (\$450.00); and

For a six days' meeting, the sum of five hundred dollars (\$500.00).

In the event the said Racing Association shall be unable by reason of rain or bad track to carry out any day's racing program of any five or six days' meeting, the said Racing Association shall pay for such

days only as such racing program shall be carried out as stipulated herein, viz: \$450.00 for a five days' meeting and \$500.00 for a six days' meeting.

In case said Racing Association shall be unable by reason of rain or bad track to carry out any part of the racing program at any meeting of said Racing Association, then said Racing Association shall pay for the use of said grounds and rights and privileges hereinunder, the sum of one hundred dollars.

It is agreed that the Indianapolis Racing Association shall have no right to use or occupy said Fair Grounds under this contract except during the meetings given by it and in preparing for said meetings.

The Indiana State Board of Agriculture agrees that this contract may be renewed or extended by the Indianapolis Racing Association for each year for the years 1904, 1905 and 1906, upon said Racing Association filing with the Secretary of the Indiana State Board of Agriculture a written notice of the desire to renew or extend the same at least thirty days before the 1st day of February in each of the years herein mentioned.

It is agreed that this contract, nor any extensions or renewals granted under it, shall not be sold, transferred or assigned or any sub-lease whatever be given for racing purposes by the Indianapolis Racing Association.

In witness whereof, the said Indiana State Board of Agriculture has hereunto caused its corporate name to be signed and its corporate seal to be affixed by its President and Secretary thereunto duly authorized; and the said Indianapolis Racing Association has also hereunto caused its corporate name to be signed and its corporate seal to be affixed by its President and Secretary on the day and year first above written.

THE INDIANA STATE BOARD OF AGRICULTURE,

By JOHN L. THOMPSON, President.

CHARLES DOWNING, Secretary.

THE INDIANAPOLIS RACING ASSOCIATION,

By W. W. BAKER, President.

W. A. HOLT, Secretary.

The President appointed the following committee on the revision of the premium list for the coming fair, viz.: Messrs. Conger, Niblack, Wallace, McDonald and Claypool, the same being the Executive Committee, and said committee was instructed to meet February 10th, at 10 o'clock a. m., for the purpose of revising the premium list.

The Secretary was instructed to notify members of the Board to meet February 12th, at 10 o'clock a. m.

On motion, duly seconded, Mr. Claypool was authorized to negotiate with the owners of Dan Patch, Prince Alert and Dan R., with a view of having said horses perform in a race during the fair.

The Board then adjourned until tomorrow, at 9 o'clock a. m.

CHARLES DOWNING,
Secretary.

Thursday morning, January 22d, 1903, the Executive Committee met pursuant to adjournment. The President and Secretary were present, and all members of the committee.

A number of agents of advertising firms appeared before the Board with samples of pictures and advertisements.

A proposition from Mr. John C. Webber, of Cincinnati, to furnish music for the fair as a special attraction was read and laid over until propositions could be received from other band organizations.

On motion, the Board adjourned.

CHARLES DOWNING,
Secretary.

EXECUTIVE COMMITTEE MEETING, FEBRUARY 10, 1903.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to order of the committee at its meeting held January 21, 1903, at the rooms of the Indiana State Board of Agriculture, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Hon. M. S. Claypool, Hon. Sid Conger, Hon. David Wallace, Hon. Jas. E. McDonald, and Charles Downing, Secretary.

The minutes of the meeting of January 21 and January 22, 1903, were read and, on motion, were approved.

On motion of Mr. Niblack, seconded by Mr. Claypool, the custodian of the grounds was instructed to put an office in the horse barn occupied by Mr. H. C. Webster, similar to those put in the barns occupied by Messrs. McCord and Eckers.

By consent of all the members it was ordered that the matter of the selection of posters for the coming fair be postponed until March 4, 1903.

The committee then proceeded to the revision of the premium list for the coming fair.

There not being time to conclude the work of revising the list today, the committee adjourned until 10 o'clock tomorrow morning.

CHARLES DOWNING,
Secretary.

EXECUTIVE COMMITTEE MEETING, FEBRUARY 11, 1903.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to adjournment, at 10 o'clock a. m., February 11, 1903, at the rooms of the Board at the State House, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; and Messrs. Conger, McDonald, Wallace and Claypool.

The committee proceeded to the work of revising the premium list for the coming fair, and upon the completion of said revision ordered that the list as revised be reported to the meeting of the full Board, which was to convene on February 12, 1903, upon motion duly seconded.

On motion the committee adjourned.

CHARLES DOWNING,
Secretary.

The Indiana State Board of Agriculture met pursuant to the call of the President on the 12th day of February, 1903, at the rooms of the Board in the State House, in the city of Indianapolis.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; John C. Haines, E. S. Tuell, John Tilson, H. L. Nowlin, Knode Porter, David Wallace, Sid Conger, W. T. Beauchamp, Oscar Hadley, M. S. Claypool, Wm. M. Blackstock, Joe Cunningham, C. B. Benjamin and J. E. McDonald.

The minutes of the Board meetings of January 7 and 8, 1903, were read and, on motion of Mr. Haines, were approved.

On motion of Mr. Claypool, seconded by Mr. Niblack, the action of the Executive Committee in contracting with the Indianapolis Racing Association for the Indiana State Fair Grounds for race meetings was ratified and confirmed.

Mr. McDonald moved that the dates for the Indiana State Fair be fixed for the week of September 7, 1903, which motion was received and seconded.

On motion of Mr. Niblack, seconded by Mr. Conger, the dates for the Indiana State Fair were fixed for September 14, 15, 16, 17 and 18, 1903.

Mr. Claypool moved that the Board open stakes for two-year-old and three-year-old trotters and pacers for colts bred in Indiana, which motion was duly seconded, and put and carried.

The President appointed Messrs. Claypool and Blackstock a Committee on Fees and Salaries for members of the Board and all officers for the ensuing year.

Messrs. Claypool, Haines and Blackstock, Committee on Fees and Salaries, made and presented the following report which was concurred in on motion:

REPORT OF COMMITTEE ON SALARIES.

Members, five dollars per day and five cents per mile for each mile traveled, and two dollars and fifty cents per day for hotel expenses actually paid.

Secretary, eighteen hundred dollars per annum. Treasurer five hundred and fifty dollars, he to pay ticket sellers and other help and expenses of his office. General Superintendent, five dollars per day and five cents for each mile traveled. Judges, five dollars per day and actual mileage.

We recommend that the sum of three hundred dollars be appropriated to cover office expenses, including stenographer and necessary clerk hire.

Custodian, \$1.00 per day, house rent, fuel and use of garden patch and pasture for one cow.

M. S. CLAYPOOL,
J. C. HAINES,
W. M. BLACKSTOCK,
Committee.

On motion, the premium list as reported by the Executive Committee, with the modifications made by the Board, was adopted, and the Secretary was ordered and directed to publish the same as adopted.

On motion of Mr. McDonald, duly seconded, the matter of the selection and purchase of the tickets for the coming fair was referred to the Executive Committee, and the members in charge of the grand stand and gates.

On motion of Mr. Claypool, seconded by Mr. Blackstock, Mr. D. B. Winchester was appointed custodian of the Fair Grounds for the ensuing year.

On motion of Mr. McDonald, duly seconded, the following claims were audited and allowed:

Indianapolis Gas Company.....	\$16 50
Diamond Steam Laundry.....	1 50
New Long Distance Telephone Company.....	1 60
Central Union Telephone Company.....	45
Mrs. Mary Burk East.....	23 97

American Express Company.....	14
Indianapolis Sentinel Company.....	8 00
Postal Telegraph Company.....	27
Joe A. Downey.....	2 00
Charles Downing	26 60

On motion, the matter of assigning show horse barns to the members in charge of the draft and light harness horses was referred to the Executive Committee, and the members in charge of said departments are to be notified of such assignment.

The Board then proceeded to vote for a person to be recommended to the Governor as a member of the Board of Trustees of Purdue University to succeed Charles Downing, of Greenfield, Hancock County, the present incumbent, whose commission expires July 1, 1903, which resulted as follows:

Charles Downing, of Greenfield, Hancock County, received sixteen votes.

After said vote was taken, the President announced that Charles Downing of Greenfield, Hancock County, having received the unanimous vote of the Board, was entitled to the recommendation to the Governor as a member of the Board of Trustees of Purdue University to succeed himself. And the Secretary of the Board was directed to certify said recommendation to the Governor of Indiana.

On motion of Mr. Claypool, seconded by Mr. Blackstock, unfinished business of the Board was referred to the Executive Committee for action. On motion, the Board adjourned.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met on February 13, 1903, on the call of the President, at the rooms of the Indiana State Board of Agriculture in the State House, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Messrs. McDonald, Wallace, Claypool and Conger.

On motion of Mr. Claypool, duly seconded by Mr. Niblack, the sum of \$1,000 was appropriated and set apart for the Western Horseman State Race.

On motion of Mr. McDonald, seconded by Mr. Claypool, the matter of renting or leasing the farm land on the Fair Grounds was referred to the President and Secretary, with power to act.

On motion the committee adjourned to meet March 4, 1903.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to adjournment at the rooms of the Indiana State Board of Agriculture in the Capitol building, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; David Wallace, Sid Conger, M. S. Claypool and James E. McDonald.

Mr. Hewes of the Inland Poultry Journal, and others representing the State Poultry Association, appeared before the Board and requested the Board to enlarge and improve the poultry exhibition building and to provide new coops for the building.

Mr. Wallace moved that the poultry building and coops be improved at an expense not to exceed \$1,000, and that the President and Mr. Conger be appointed a committee to confer with the committee from the Poultry Association and ascertain their wishes and submit plans and estimates of said improvement at the next

meeting of the Board, which motion was seconded by Mr. Claypool and a vote being taken upon the same was declared carried.

At this point the minutes of the meeting of February 12th and 13th were read and, upon motion of Mr. Wallace, seconded by Mr. McDonald, were approved.

On motion, the Board adjourned to meet tomorrow morning at 9:30 o'clock.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to adjournment March 5, 1903, at the rooms of the Board in the State House, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; David Wallace, Sid Conger, M. S. Claypool and James E. McDonald.

On motion of Mr. Claypool, seconded by Mr. Wallace, the President was authorized to enter into a contract with Mr. A. P. Wiltshire to move the power-house east of the Administration Building to a point about eighty feet east of the railroad loop on the south side of Central avenue, said building, when so moved, to be used as an eating house.

On motion of Mr. Niblack, duly seconded by Mr. Claypool, the President was instructed and authorized to remove the board platform at the street car exit gate in the loop, and to request the street car company to construct a cinder platform in the place of said plank platform.

On motion of Mr. McDonald, seconded by Mr. Niblack, the President and Secretary of the Board were authorized and em-

powered to contract with Mr. Sousa for four concerts during the fair Wednesday and Thursday afternoons at the Fair Grounds, and Wednesday and Thursday evenings at Tomlinson Hall, at the price of \$3,500.

Bids for printing 15,000 premium lists for the coming fair were opened by the Board, and are as follows:

The Mitchell Printing Company of Greenfield.....	\$298 55
The Banner Publishing Company, Ligonier.....	270 00
Jos. Ratti, Indianapolis.....	272 00
Kentucky P. L. Paper.....	284 00
Wm. B. Burford, Indianapolis.....	257 00

On motion of Mr. Niblack, seconded by Mr. Conger, the bid of Mr. Wm. B. Burford for \$257 for printing the 15,000 premium lists on same kind of paper on which the Kentucky State Fair list of last year was printed was accepted and the President and Secretary of the Board were authorized to enter into a contract for the same with Mr. Burford.

On motion the following claims were allowed, and the Secretary was authorized to issue warrants for the same:

Indianapolis Gas Company.....	
Balke & Krauss Company.....	\$15 34
R. L. Polk & Co.....	5 00
Knight & Jillson.....	52
Horse Review	25 00
Diamond Steam Laundry.....	50
New Telephone Company.....	1 60
Western Union Telegraph Company.....	75
Charles Downing	5 00
J. E. McDonald.....	197 35

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to the call of the President, April 23, 1903, at 11 o'clock a. m., at the office of the Secretary of said Board in the State House, in the city of Indianapolis, Indiana.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary; Messrs. Sid Conger, David Wallace, M. S. Claypool and Jas. E. McDonald.

The meeting was called to order by the President and the minutes of the meetings of March 4 and 5, 1903, were read, and, on motion, were approved.

The question of duplicating prizes offered by the different State Cattle Breeders' associations was discussed at length by Messrs. W. H. Pleak, of Greensburg, representing the Polled-Angus Breeders' Association, and John C. Gartin, of Burney, Indiana, Secretary of the Indiana Shorthorn Breeders' Association, as well as by members of the committee.

After a full discussion of the subject of duplicating prizes, Mr. Jas. E. McDonald moved that all special prizes in the cattle classes offered by national associations be duplicated by the Board to the amount of \$500, and that all special prizes offered by the State Breeders' associations in cattle classes be supplemented by the Board to the amount of \$250, which motion was seconded by Mr. Conger.

Thereupon, Mr. Wallace moved to amend said motion as follows: That the Board duplicate or supplement the special prizes offered by the Indiana Polled-Angus Breeders' Association to the extent of \$250; that the Board duplicate the special prizes offered by the Indiana Hereford Breeders' Association to the extent of \$500, and that the Board duplicate all prizes offered by the Indiana Shorthorn Breeders' Association to the extent of \$500. Which motion to amend was seconded by Mr. Niblack.

After a further discussion of the question a vote was taken, and the amendment was declared carried.

A vote was then taken on the original question as amended, and the motion as amended was declared carried.

On motion of Mr. Claypool, seconded by Mr. McDonald, it was ordered that the matter of advertising the coming fair in the city and country newspapers be referred to the President and Secretary of the Board, with power to act.

On motion of Mr. McDonald, seconded by Mr. Wallace, it was ordered that press agents for the three principal newspapers of Indianapolis be employed, and that they be paid for their services the sum of \$50 each, and that the Secretary be empowered to contract with said agents.

On motion of Mr. Claypool, seconded by Mr. Niblack, the President was authorized to purchase posts and lumber and to have built fences around the half-mile track, and also to purchase lumber sufficient to put lofts in five of the horse stables on the south side of the track.

On motion of Mr. McDonald, seconded by Mr. Wallace, the Board ordered that four stakes be opened and advertised as follows:

2:13 trotting stake.....	\$1,500 00
2:24 trotting stake.....	1,500 00
2:08 pacing stake.....	1,500 00
2:20 pacing stake.....	1,500 00

And that said stakes be advertised in the following horse journals, viz.: The Horse Review, The Western Horseman, The Kentucky Stock Farm, The Horse World, and The American Sportsman, and that Mr. Claypool furnish the advertisement and contract for same.

On motion, the Board adjourned until tomorrow morning at 10 o'clock.

CHARLES DOWNING,

Secretary.

April 24, 1903, The Executive Committee of the Indiana State Board of Agriculture met pursuant to adjournment at the office of the Secretary in the State House, Indianapolis.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Charles Downing, Secretary, and all the other members of the committee.

The committee arose and visited the Fair Grounds.

After the committee returned from the Fair Grounds, the following claims were examined and allowed and ordered paid, viz.:

The A. Birdsall Co.....	\$18 94
American Trotting Association.....	4 00
Balke & Krauss Co.....	36 70

On motion the Board adjourned.

CHARLES DOWNING,
Secretary.

EXECUTIVE COMMITTEE MEETING, MAY 28, 1903.

The Executive Committee met pursuant to the call of the President.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President, and J. E. McDonald, Sid Conger, M. S. Claypool, David Wallace, and Charles Downing, Secretary.

The minutes of the previous meeting of the committee were read and, on motion of Mr. Niblack, were approved.

Mr. Moore, advertising manager of the Indianapolis Sentinel, submitted a proposition to advertise the fair in the Harvest Home edition of the Sentinel, which the Board took under advisement for the time being.

An application for the use of the Fair Grounds for a picnic to be held Monday, September 7, 1903, was made by a committee from the Labor Union organizations of the city.

On motion of Colonel Wallace, seconded by Mr. Conger, the application was granted and the Secretary was authorized to enter into a contract with the committee for the use of said grounds for the sum of \$100.

On motion of Mr. Conger, seconded by Colonel Wallace, it was ordered by the Board that the National Guard of Indiana be allowed to use the Fair Grounds for a camp of instruction for July 26 to August 4, 1903, inclusive, under proper restrictions and conditions satisfactory to the President and Secretary.

Upon motion of Mr. McDonald, duly seconded by Colonel Wallace, it was ordered that the conditions, classification and rules governing the duplication of special prizes offered by the State Hereford Breeders' Association stand as printed in the premium list of the fair.

The application of Mr. W. E. Reynolds for superintendent of the grounds was discussed and considered by the Board and taken under advisement.

By consent of all the members of the committee the sum of \$250 was appropriated and set apart for an advertisement in the Harvest Home edition of the Indianapolis Sentinel.

On motion of Mr. Conger, the following claims were allowed, and the Secretary was ordered to issue warrants for the same, viz.:

Diamond Steam Laundry for towels, etc.....	\$0 50
J. W. Lagrange, salary as Treasurer.....	183 35
Hogan Transfer Company, freight and drayage.....	1 63
Langencamp Bros. Brass Works, valve.....	50
Balke, Krauss Company, lumber.....	155 93
Central Union Telephone Company.....	9 65
Silas H. Johnson, hay.....	20 00
Knight & Jillson.....	80
Crescent Oil Company.....	4 40

On motion of Mr. Claypool, all unfinished business was referred to the President and Secretary.

On motion, the Board adjourned.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met pursuant to the call of the President at the rooms of the Board in the State House, in the city of Indianapolis, Indiana, on Tuesday, July 7, 1903.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Marc S. Claypool, Sid Conger, David Wallace, James E. McDonald, and Charles Downing, Secretary.

The minutes of May 28th were read and, on motion, were approved.

On motion of Mr. Claypool, seconded by Mr. McDonald, the President was authorized to appoint a committee to replat the grounds for exhibit purposes and also to revise the contracts for space for privilege pavilions and buildings for mechanical and other exhibits and displays.

On motion of Mr. McDonald, seconded by Mr. Claypool, the following claims were allowed by the Board, and the Secretary authorized to issue warrants for same, as follows:

California Track Harrow Company.....	\$12 00
C. W. Rostetter & Co.....	9 00
John M. True, Secretary.....	15 00
Adams Express Company.....	65
U. S. Express Company.....	9 38
F. M. Rottler.....	4 95

On motion the Board adjourned to meet at the Fair Grounds tomorrow morning at 9 o'clock.

CHARLES DOWNING,
Secretary.

The Executive Committee of the Indiana State Board of Agriculture met at the rooms of the Board in the State House in Indianapolis, Indiana, July 8, 1903, pursuant to adjournment.

There were present, Hon. John L. Thompson, President; Hon. Mason J. Niblack, Vice-President; Sid Conger, David Wallace, M. S. Claypool and J. E. McDonald.

On motion of Mr. Claypool, seconded by Mr. Niblack, the matter of selecting the form of admission tickets to be used during the coming fair, and the purchase of the same, was referred to the President and Secretary, with power to act.

On motion of Jas. E. McDonald, seconded by Mr. Wallace, the Board allowed the sum of \$100 to Mr. Conger for expenses in attending committee meetings during the Legislature of 1903, and the Secretary was directed to issue a warrant in favor of Mr. Conger for the amount.

On motion of Mr. Wallace, seconded by Mr. Niblack, it was ordered by the Board that the Secretary recall the annual reports of 1901 and 1902, and arrange each year's report separately, and present the same to the State Bureau of Printing, with a request that said reports be printed and bound separately.

Several matters concerning the improvements to be made on the Fair Grounds and the details of the coming fair were discussed.

On motion the committee adjourned.

CHARLES DOWNING,
Secretary.

Professor John Harrison Skinner, of Purdue University, Lafayette, made the following address before the Delegate Indiana State Board of Agriculture:

Gentlemen of the State Board of Agriculture:

It gives me great pleasure to come before you this afternoon. It has been a great while since I have been before an Indiana audience in this way, and I certainly am very glad to meet the members of the

State Board of Agriculture, and to come before them to speak of something I believe to be of vital importance to our State.

If we look about us today, we will find on every hand changes which are rapidly taking place. We will find that new ideas are coming in, that progressive methods are taking the place of old ones in agriculture throughout the country. These new ideas and new methods must necessarily mean many other changes. They mean for us a higher life; they mean for the live stock men and the crop men greater profits; they mean changed conditions in our farming; they mean a higher living; they mean better farmers, and we certainly need to have a part in moulding these changes.

The farmer has many problems before him today, and many of them are of vital interest to this State. Indiana is a great agricultural State, and we certainly must give attention to some of the problems that affect agriculture. The farmer has to meet problems of a varied nature. We have come to realize that the farmer needs to be the biggest sort of a man, because he has the biggest sort of problems to handle, and he has more of them than any other man in the world. If we study the problems of agriculture today we find that there is the problem of the crops to grow, the problem of tillage, the problem of the selection of seed, the problem of harvesting, the problem of the nutrition of the crops, the problem of labor, and many others of like interest. We all realize that the problem of labor is a most important one, one of the most important problems we have to face; but under all this, and back of all this there is a still greater problem, I believe the greatest problem our farmers today have to face, that of maintaining soil fertility. We only have to study the conditions in New England or the South, or, coming a little closer home to our Northwest, or even into our own State, and we will see that there is a waning of soil fertility. Some of you may ask how it is that we are raising more corn to the acre today than ever before. That may be true, but it is not due to the fact that we have built up the soil fertility, or that we are building it up very rapidly. There are some few who are making improvements along this line, but our increased yields of corn are very largely due to a changed condition of affairs which has nothing to do with the maintaining of soil fertility. We have drained the land, we are doing better tillage, and consequently we are reaping greater rewards for our work; it is not because we are increasing the fertility. The question of maintaining the soil fertility is one that has been neglected too long. This is acknowledged on all sides. Farmers are discussing it everywhere, and are beginning to study how to increase the fertility of their soil. They may discuss the question of clover, or of cowpeas or of rotation of crops, but it all comes back to the question of building up wornout land. When we come to look over the situation we find that we must be doing something, that we must awake to the fact that our soil is decreasing in fertility, and

the outlook would be a gloomy one were it not that here and there people are beginning to meet this condition by rotation of crops combined with live stock. We find occasionally an intelligent system of live stock husbandry on our farms, and where we find that we find the answer to the problem of maintaining soil fertility.

I want now to bring before you the necessity of having live stock on the farm. The only possible way in which we can build up our land and maintain its fertility is by raising live stock on the farms. Fertilizers have been tried, but they do not add anything of a permanent nature to our soil. By putting a chemical fertilizer into our soil we are enabled to get a good crop. We assist the elements which are in the soil already to produce a large yield. There may be a lack of one element in the soil, and we supply that by a chemical fertilizer; but we add nothing of a permanent nature to the soil by that method. Every hundred dollars worth of corn takes thirty-six dollars worth of fertility from the soil by this method. We are selling our soil by the ton. If you study the question of beef production, or the keeping of live stock on the farm, you will find that every hundred dollars worth of beef will take off in soil fertility not more than ten dollars. Every hundred dollars worth of butter takes off about eleven cents worth of fertility. If you go into a live stock community you will find increasing yield of crops, good homes, good buildings, good fences, improved farms and improved farmers, if you please. In the sections where grain is grown exclusively there is a contrast. I do not mean to condemn the grain farmer, not at all, but I do believe that Indiana ought to be growing as many bushels of corn on one-half as many acres as are now under cultivation. The other half of the acreage should be in pastures. If you go into the grain growing sections you will find that farmers do not have good barns, their fences as a rule are not given much attention—they do not have to keep their stock in—and as a rule careless methods are used and the farmers are not so progressive as in the sections where live stock is raised. I suppose there are corn growers here today who will say that I am wrong, but I know that between the grain growing sections and the live stock sections there is this difference. The grain farmer does not travel about as much as the stock farmer does, nor does he make the improvements the stock farmer does. The stock farmer has his profits distributed from one year to another and throughout the year. Has it ever occurred to you that that is one of the ways in which we are to solve the labor question on the farms? If we distribute our labor throughout the year and can give the men employment from one month to another throughout the year we are going to have a better class of farm laborers. You can do this by raising live stock on the farms. If a man furnishes work for his farmhands the year through he will be able to secure a better class of men than does the farmer who only employs his men for five months or through the busy season.

The man who works for a grain farmer has work only during the summer season, and after that he drifts around, perhaps going to the smaller towns, and in a few years becomes a spendthrift with no settled occupation. But the man who goes on a farm for twelve months saves his money, and in a short time you will find him on a little farm of his own. Or he may become a tenant for a few years, and then have his own farm. You can make your profits greater, can distribute them more evenly, can help other men along, and all the time you are making your farm richer by this kind of farming. You will say that it is hard for some of the smaller farmers, some of the younger ones, or some of the tenant farmers to become stock raisers. True; but we can help them. Men who know the business can suggest ways of starting the business and ways of getting hold of a small herd of cattle. It is true that a great many people do not know how to feed this stock, but they can learn, and they will learn if they have the stock.

The trouble with our American farmer is that he wants to count the dollars that he gets in rather than the dollars he puts in. How many here know the exact profit their farms bring them? A man can easily tell you how much money he gets out of his farm, but he can not tell you how much he puts in. We can study the markets. A man said to me the other day that he could not feed cattle at the price they are bringing. I asked him if he was sure he could not. Are you sure that you can not do this? The trouble is that we usually produce something in this line that sells a cent or two cents under the top market price. How many men feed well enough to get this price? We need to produce a better article of live stock. Follow your cattle to Chicago and see how many of them reach the top of the market. We should try to produce the very best and we will always find a market for it. There is little trouble in selling a first-class product, but the poor product is always a drug on the market. We need to study the question of how to produce a better quality of beef, and how to produce it economically. We must not lose sight of the fact of fertility in discussing this. I do not believe that any man has a moral right to rob the soil, and that is what we are doing in many cases. We should encourage in every way possible the bringing of more live stock into our State, and to encourage the breeding of better stock. Go to the stockyards and study the stock there. Go into our horse markets, if you please, and see how many of the horses that go into the market are sold for anything like first-class prices. Farmers do not know, as a rule, what the markets demand. We need to study the markets and encourage in every way the bringing of live stock to the farms.

We know if we grow a clover crop on the farm something must take care of that. Travel over the State and see the tons and tons of corn stacked up that ought to be going through cattle and sheep and producing a profit. These things are going to be different when we come

to farm more logically. Then think of the waste there is on our farms. If you study the question of waste you will find that most large farms have enough waste products on the farm to pay the running expenses if they were properly fed.

I think an organization such as the State Board of Agriculture has a great opportunity for helping this business and for encouraging the live stock interests and improving them. Some of you may ask how we are to do that. I believe our stock shows, our State fairs and our county fairs are doing much along this line. Some of them are not giving much attention to agricultural products, it is true, but that ought to encourage both sides, and particularly the live stock interests. Many of the men who are interested in cattle or hogs or sheep go to the international shows. Why do you go there? You go there to see the best there is, you go there to form ideals, and you come back with an inspiration to grow better live stock. So it is with our shows and with our State and county fairs. We need to make our shows the very best. There has been great improvement in our Western States along this line, but Indiana has been a little behind in some of these things. I know Indiana has a good State Fair, but we ought to do more and make it better. If we go into some of the Western States and see what they are doing in their agricultural colleges to encourage the work of live stock farming we will find that Indiana is not quite up with them. Our county fairs should be encouraged. If we have good shows of live stock we may get there a class of farmers who have not been going to the State fairs, and they will get an inspiration there to grow better animals. After a time they will be inspired to go to the State fairs and the larger shows. A good show is a great inspiration. I am sure that you who attend them are improved by the stock exhibits.

You may say that you can not approach the stock that is shown at these exhibits. Are you sure that you can not? You have never tried, and at least you can do the best you can and you may be surprised at the results. We have some of the best live stock in the country in Indiana, and we have one of the best State fairs; but we should strive to make them better. We should encourage the exhibitors to come here, and we should encourage our people to come here and study the live stock problems. We should make the shows appeal to the farmers. You may say that the farmer is not interested in this sort of thing when he comes to the fair. I know there are some men who like other things and go for other things, but we should not forget that the larger number of farmers who attend the fairs go there to see the exhibits of live stock and agricultural products. We can not afford to keep on selling the large number of bushels of corn off our land that we are selling today. The other day I went out into the country and saw in one place an eighth of a mile of rail corn cribs piled up to be sold. Not a bushel of that corn was to be fed in Indiana. Can we afford to do this when we know

that for every hundred dollars worth of that corn that is sold for thirty-five cents a bushel we are selling off sixty-four dollars worth of fertility from our land? Can we afford to do this?

Now I have gone over this problem in a brief way, and have pointed out the fact that there is a waning fertility. If you will study the question you will find that on going westward wherever they have sold off grain crops continually the land is being worn out, and the tendency of the farmers is to go farther on to newer soil. But there is going to be a back action after a while. You will find some of it today. Some of the wealthy farmers of the West are going to Ohio and buying up the land and putting live stock on it. We should watch this matter carefully. You will find in the best corn growing sections of Illinois the farmers are trying to bring back the fertility of their soil, and are taking the only way of doing it, raising live stock with the grain crops. I have not tried to say anything that will help you in a practical way to do this when you go home; I am simply pointing out the necessity for this method of farming, and hope you will profit by it. I know there are some men in the State who think the agricultural colleges teach mere theory. That is not so. Why is it that Iowa has put so much money into live stock in her agricultural college? Simply because she knows that to do that means greater wealth to her people. What is the State Board of Kansas doing for that State? Studying the question. Look and see what can be done along that line. The opportunities of the agricultural college of Indiana are enormous. I hope the live stock associations and the corngrowers' association will do all they can to make the State fairs more successful, and will do everything possible to encourage the men who are trying to bring back fertility to the soil by raising live stock.

INDIANA STATE ASSOCIATION OF FAIR MANAGERS.

The Indiana State Fair Managers' Association held its annual session at 2 p. m. Tuesday, January 6th.

The meeting was called to order by President J. J. Insley.

President Insley called Mr. Blackstock to the chair while he read the following annual address:

PRESIDENT'S ADDRESS.

Officers and Members of the Association of Fair Managers and Gentlemen:

The circumstances under which we hold our meeting this year are peculiarly auspicious; old debts that for years have hung upon many of our associations, like the Old Man of the Sea upon the shoulders of

Sinbad, have been cast aside and we now breathe easier. But this is not the sum of our gain—we have erected new buildings, repaired old ones, constructed new barns, stalls and pens, improved our tracks and grounds, and drawn to ourselves a more widespread patronage than we have yet enjoyed; which latter has enabled us to enlarge our premium lists and extended our classifications, and in many ways make it manifest that we are growing larger and stronger than ever before.

Now fairs, in the great majority of cases, serve more faithfully than any other agencies to reflect the intellectual development and material prosperity of the territory from which they draw their support. There the abundance of our harvests, the qualities and values of our productions, the advances in invention, mechanical construction, the taste and culture, as manifested in artistic and textile creations and selections, were seen to have made remarkable advances over those of former years.

In the particular of crops, our State stands forth as a marvel of fecundity in the year of grace 1902; value of all crops for this year being \$32,000,000 greater than for the year 1901. Of other cereals it is not necessary that I should speak, but a substantial increase is shown in all.

While productions in this line have made such notable advance, they have also advanced along other lines, and yet prices have kept up, the demand being larger and money easy. No class of our citizens have prospered to the degree that those have who are engaged in agriculture and, as always happens under like circumstances, their prosperity has enhanced the pecuniary interests of all. Trade has flourished, the wages of artisan and labor have been good and have not failed at any time during the season of labor.

While a considerable portion of this advance in the material interest of all our people is due to a highly favorable condition at home and abroad, which may show fluctuation at any time, there is one factor constantly at work which must show its potency at all times, and that is the increasing intelligence and scientific knowledge of those engaged in agriculture, which is being stimulated to a degree never before known in the history of the world, through the agencies of higher education, the press, the telegraph, the telephone, the daily mail, which now brings the once isolated farmer into intimate contact with the very center of commercial activity, and the "thoughts that shape mankind." That these in turn will increase production, and procure a better selection of things produced and a higher and more abundant development in all, needs no great foresight to perceive.

While production, stimulated by good prices, ready returns and vastly increasing knowledge of the scientific principles which underlie production, is advancing with rapid strides, it is painfully apparent that transportation and distribution are not keeping up in the race, nor is the

former being cheapened to a degree that will enable all products of the country to reach their proper market.

During the past year transportation was often overtaxed by the supply of material, and in nearly all departments of trade there were congestions of their thoroughfares, vexatious delays and losses, besides other ills that are obvious. We should begin here and now to agitate until a remedy is found for present hindrances.

Why should our wealth of produce all be poured through a comparatively few channels to a few distributing centers until they are glutted into a state of torpor, out of which they must be prodded, by other parts that actually suffer from scarcity? Is it not possible to make the metropolis of every State the distributing center for that State, and so greatly facilitate the work of distribution, while at the same time the commercial interests of the State and its metropolis will be enhanced?

Take, for instance, our capital city, the metropolis of our State, one of the greatest railroad centers in the world; with its daily hundreds of arriving and departing trains, and its abundant facilities for handling them. Would it not be the part of wisdom to make use of the advantages which it offers in these respects, rather than turn our fertilizing streams to the northwest, the southwest and the southeast, and there cause to bloom gardens that are not ours?

With the creation of more distributing centers should come the enactment of laws requiring all trunk lines of railroads traversing our State to provide double tracks to the State lines, in order that a more rapid and easy transit may be had.

As the necessary complement of these, we should have a system of highways leading from all points of importance in the State to our capital, even as it was said in ancient times "All the roads of the world lead to Rome." These should be built of macadam, broad, smooth and level, as are the thousands of miles of road in France and Germany, as fit for travel and heavy loads at one season of the year as another and fit for all sorts of vehicles, including the flying automobile.

In the construction of these roads, convicts, inmates of the county jails, vagrants, and the manageable, able-bodied of all our eleemosynary institutions, should be employed, as it might be to their own advantage and that of the State. The reproach that now attaches to the State for bringing convict labor in competition with free labor would then be taken away. In the particular of vagrants, laws should be enacted whereby persons showing no visible means of subsistence might be convicted of vagrancy and compelled to serve the State.

These roads, once constructed, should be maintained in permanency by sections in charge of which should be placed regular minders of roads, properly equipped and so constructed and maintained that they should be made accessible to every farmer in the State.

Those of us who remember what our roads were years ago, and how they were kept, also know how wretchedly inadequate they would prove

for present conditions. Believe me, that in the present international struggle for commercial supremacy, where swift and adequate transportation counts for so much, a very few years will find our present roads, with the present system, or want of it, of keeping them, inadequate.

As I said a moment since, the time to begin to agitate the subject of better roads better kept, is now, and the place—here. I would most respectfully recommend to your honorable body the selection of a legislative committee, whose province should be to secure from the Legislature of Indiana, and through that, such national enactments as will stimulate and foster, to a greater degree, our agricultural and commercial interests and that will secure from our own Legislature such enactment as that county commissioners be empowered to aid struggling agricultural societies by purchasing of suitable lands for such societies' use.

The next subject on the program, "Should Exhibits be Confined to County; if not, Wherein Limited," was led by John Tilson, who said:

Article I of the Constitution of the Indiana State Board of Agriculture states that its object is: "To promote and improve the condition of agriculture, horticulture and the mechanic, manufacturing and household arts." It should have added, "and to bring about an increased interest in all branches of live stock raising." In another place it says, "County fairs shall conform to the rules and regulations of the State Board."

The agriculturist while enjoying social relations sees and talks about the different improvements, the different breeds of live stock shown, notes the improvement in agricultural and horticultural exhibits, sees new varieties of fruits and vegetables. The wide-awake farmer, the one that gets there, not only wants to talk at our county fairs about the different breeds of cattle, the varieties of fruits, vegetables and grain, but he gets the desire to have them for his own. We believe that the State and county fairs have done more to bring about the high standard of the live stock in this State than any other one thing. If this is true, and I think we will all admit that it is, then why confine exhibits to the county? I do not think there is one county in our State that could show all the different breeds of sheep or hogs, or the different breeds of beef and dairy cattle, or the different varieties of vegetables and fruit. I think we will agree that the exhibits should not be confined to the county; but where should we place the limit? I say do not put any limit. If any county in our State or any county in any other State has better corn or a greater variety of corn than Johnson County, we welcome them to our county fairs and will give them as good a show as possible and insure them a good sale for their corn, because if it is better than anything we have we want it. The same thing is true of stock of all kinds. The first herd of Polled-Angus cattle and the first herd of Here-

fords that the majority of our farmers ever saw was exhibited at our county fair only a few years ago, brought in there from some other place. Now there are several herds in the county, and breeders and feeders are buying them. Let us have all the new farm implements shown that are manufactured anywhere, especially the new corn shredders. If there are any let us have them.

J. E. McDonald: I would like to ask if their are county fairs In Indiana that are not open to all exhibitors?

Mr. Insley: I can not say as to the condition of things at present; but years ago there were a few fairs that put down the bars in some classes to the outsiders, but the most of the exhibits were confined to the counties. I believe that has been done away with, yet in our own county last year we opened up a class for some certain breed of cattle for county exhibitors to stimulate them to have better exhibits.

Mr. Blackstock: My observation has been similar to yours. I think the idea is gaining ground that if a county has any specialty, if there is any enterprising man or set of men there that have put money and brains into some special feature of agriculture, it is the duty of the managers of the fair of that county to encourage that feature. They may have the class open to the world, but if so, they ought to give some special inducement to these producers and offer a special premium for what is produced in the county. The only objection I find to this idea of having double classes is that none of the county fair managements have enough money to divide the premiums. The amount of money we usually have is small enough for single premiums; nevertheless I believe every county fair management ought to take into consideration any specialty that farmers in that county are trying to develop, and encourage them. I think the Johnson County fair is to be credited somewhat with the result of Johnson County's wonderful corn production. I believe this local county idea is a good one, and while it might be carried too far, every county fair ought to give special inducements for developing its own special industries.

The next subject, "How Can Fair Management Be Improved? Duties and Salaries of Officers," was led by W. F. Hulet, of Crawfordsville, who said:

Mr. President and Gentlemen:

How to improve the management of the county fair is a question which is entitled to a very careful study and is open to considerable discussion. The question how to improve it does not imply that it is bad, but the reverse. The difficulty in answering the question arises from the fact that the fair management is much nearer perfect than the public at large is prepared to believe; therefore, when we come to suggest changes or improvements, we must remember that the fair is an institution that has come to us with the experience and improvements of our fair managers for many years. The changes should be very conservative and made in a way that we will not lose any of the benefits we now have.

One person may think the mission of the county fair should be one thing, and another another thing, according to the trend of their own individual business. Some would say the development of the speed horse should be the dominant feature, some the draft horse, some the beef cattle, some swine, some sheep, poultry, and so on, all of which should have a prominent place in the county fair and should have all the assistance and support that the fair managers can give them; and I believe that it will be conceded that all of them have been fairly treated by the fair managers, generally, and that nothing has had more to do with the advancement and development of these classes than the recognition they have received at the hands of the fairs.

It has been instilled into the stock breeders, by the yearly exhibition which has continued for many years, that the way to make the most out of their stock raising, is to raise the best. There is a friendly rivalry existing among the stock breeders, as to who can develop their stock to the standard nearest perfect, which rivalry is a source of great wealth to our country, and I believe the fair has been the power behind it all.

The fair manager should take a broad view of the question, not of the classes that I have spoken of only, but everything of merit should be encouraged in order that it may be developed to be the best of its kind. The farmers' produce, fruits, grain and seeds, the merchants' display and the women's exhibit should receive the thoughtful care of all fair managers. When you go to the fair, you should be able to see the best of everything, no matter in what class it belongs.

I believe the county fair is one of the best and most beneficial institutions we have and indirectly does a great work, the effects of which can not be measured. The county that has no interest in a fair is unfortunate. You may go to the county where there has been a well man-

aged fair for many years and there you will find the best kinds of wheat, corn, breeds of horses, beef cattle, hogs, sheep and, in fact, the best of everything and everything done on the latest and most improved plan. The desire for the best is the natural desire of the American; to see the best is to want it, and to want it is to have it.

In so far as it is possible to do so, the fair should include in its premium list, classes and premiums for everything of merit, and in most cases, I would favor making the classes open to the world. Don't build a fence around your fair to keep the exhibitors out, but let them come. They are the ones to enter your gates first, and why should we bar the foreigner if his goods or stock are better than we have at home? We want our home people to have a chance to see their exhibits, and if our home production is an advance over theirs, let them learn of us. By making home classes, you encourage many people to make exhibits that would not otherwise do so. The ordinary stock breeder feels that he can not compete with the expert, but if you induce him to exhibit a few years, he will soon become an expert and will not be afraid to meet the world. If you will examine your entry lists from year to year, you will be surprised to find the great similarity, in fact, almost the same list of names; especially will you find this the case in the exhibits of horses, cattle, sheep and swine, and this suggests the fact that when a man once becomes an exhibitor, he continues his good work from year to year, and this should teach us that we should make use of every means to encourage the beginner. If the association can not afford to make both classes—one open to the world and one to the county—I would prefer the one open to the world, as it will be of greater benefit to the Association and to the people at large.

The fair should be an educational rather than a dividend-paying institution, and should be managed in such a way that others may learn how to make money and improve their stock. A large bank account will not help a fair unless it is expended. Now, don't understand me to be in favor of extravagance—get your fair out of debt and do not expend more than you can make, for a deficit is very discouraging at all times.

Some people seem to think there is not as much interest taken in fairs at the present time as in the past; but that is a wrong impression. Statistics will show you that there are a greater number of exhibitors than ever before, and the exhibits are much better. More people attended the fairs in 1902 than for many years. When we have prosperous times, we have good fairs. I believe the fair should keep abreast of the times, as they can not be managed as they were twenty-five years ago and succeed.

Look around at the business world and see the changes and improvements in the management of its affairs. The large, brick business block taking the place of the little, old frame one; the beautiful furnishings for the interior, the grand displays of merchandise—everything is done

to attract the eye and the latest improved methods have been adopted for handling the business successfully. The same methods should be applied to the fair. No one would expect the business man to succeed if he should attempt to run his business on the same plan that he used twenty-five years ago, and neither can the fair.

I believe the old buildings should give way to new and more modern ones, and all should be kept well painted and in good repair. The stalls and barns should be kept in the best condition—clean and healthy. Make the stay of your exhibitor as pleasant as possible. Nothing should be left undone for his convenience, as it is the exhibitor that makes the fair. Special attention should be given the grounds and they should be kept as near like a park as possible.

The premium list should be revised each year—adding to and taking from as the existing conditions would require, but always keeping the list in advance rather than behind.

The first duty of an officer of any fair association is to study the question of fair management until he has thoroughly acquainted himself with all its details, then keep his eyes open and his brain at work to see wherein he can improve his department. The superintendents of the different departments should be expected to look after the needs of the exhibitors of their departments. It is too often the case that the exhibitor sees the superintendent of his class only when the ribbons are being tied. His duty is with his department until the fair closes.

As to salaries, I believe that the fair work should be largely a patriotic work. While it is always necessary to pay some salaries, I do not think it necessary to pay as much for fair labor as the same labor would bring in other occupations. I believe the Secretary should be paid and he should do the work of all the departments up to the time of the fair; have a good system of bookkeeping, by which he can handle the business with rapidity and make prompt settlements, and be prepared to pay the exhibitors on the last day of the fair. There is nothing that will keep up the standard of the county fair more than prompt payments.

The next subject on the program, "Proper Privileges," was led by Mr. H. L. Nowlin, Lawrenceburg, who said:

The question of what are the proper privileges is certainly one that is of much importance to all our fairs, and from the privileges we see sold on different fair grounds we must infer that the different managements have a wide range of views as to what proper privileges are. Usually the first thing we look after in selling privileges is the money. But the patrons of a fair also demand that we have certain things on the fair grounds in the shape of privileges. So in considering what are proper privileges we should look at it from a financial standpoint and also from the standpoint of what is demanded by our patrons. There is one class

of privileges that, while it does not injure the patrons very much, causes the fair managers a great deal of trouble, and that is the exclusives. Whenever a fair manager sells an exclusive privilege he is going to have trouble. Yet there are a few privileges it is almost absolutely necessary to sell to one person. For instance, the score card should be sold as an exclusive privilege. That can be reasonably well protected. Sometimes, however, in the county fairs it is not easy to protect it. Another privilege that can be sold exclusively is the grand stand. Where admission is charged that privilege can be sold and protected. Another privilege is the feed privilege. That will cause a great deal of trouble if sold as an exclusive privilege. In the machinery department we will have hay presses, feed grinders and cutters and various kinds of machinery that use and prepare feeds, and those people are going to sell the feed to the exhibitors, and it is always causing trouble. So, taking it on down the line, the exclusive privileges are always causing dissatisfaction.

Another thing that always causes trouble on the fair grounds is the selling of intoxicating liquors. Not many fairs in the State, I believe, allow the sale of intoxicating liquors on the grounds. I do not think it is a proper thing to allow on any fair ground. Our fairs should be educational, and we certainly do not want to educate the young people of the land to drink intoxicating liquors. That is one privilege I would absolutely rule off all fair grounds.

Another thing we all have some trouble with is games. I have been on fair grounds where there would be from one to ten of these little paddle wheels or circle machines. I will say here that if there is any sure thing in gambling those little wheels are sure things. The man who puts his money down might as well hand it to the man running the machine at once and save further trouble. I would far rather have a regular old heironymous game, and have it off on one side where the people who wanted to play, could go and do it. I do not think that would do as much harm, and they give a great deal more money for the privilege. But I should rule off all games of any sort, absolutely. If I were selling privileges for a fair ground I would not sell any privileges to proprietors of knife racks, shooting galleries or baby racks. The people who run the dining halls, confectionery stands and things of that kind will give more money for their privileges if these things are ruled out. The people who come there have just so much money to spend, and if the gallery and the knife rack gets it the others do not.

Shows are the worst things I have had to control on a fair ground. In the first place, they will not pay much for their space; they always say they do not take in much money. Perhaps they do not, but I think that is because they ought not. There is not one show in a hundred that is worth going to see if you are given a ticket free. Occasionally we have a good one, but the good ones are so few and far between that I have determined if I ever again sell privileges that no show will come on the

ground unless I know absolutely what it is. Last year at the State Fair we had more shows than usual. I do not think we had anything there that any one could object to, but more than half of them were not worth the time it took to see the performance, to say nothing of the price of admission.

There is a wide difference in the price charged for privileges. Some fair managers charge by the front foot. I do not think we do all of them justice by this manner of charging. The people who run dining halls are an accommodation to the patrons of the fair, and I think they should not be charged as much for the privilege as the people who sell cheap jewelry are charged. I think there should be from one-third to one-half difference in the price of these privileges.

I hope all of you will discuss this question, because it is of importance to every fair in the State.

Mr. Blackstock: I think you have an idea that all privilege money should be paid in advance. Do you still think so?

Mr. Nowlin: I would certainly insist that they all pay in advance. I know they all claim they have not the money to pay in advance, but I have found that if they haven't got it they can usually get it if you insist on payment in advance. The rule of the State Fair for the past four years has been to require payment in advance in every case. We charge them twenty per cent. when we make the contract, and at this time there are over a thousand dollars worth of privileges waiting to pay this. When the fair opens they pay the balance. Often I have had this sort of experience: I have written out a man's contract and asked for the money, and he would claim that he did not have it. When this happens I put the contract back in my pocket. Sometimes the man will go down into his pockets and produce the money then and there, and in some instances he will go away and get it; but I have never known one of them that did not finally get it. Last year there were just two dollars that was contracted for that was not paid. Two young men came there on Wednesday afternoon and paid part of their privilege money, and were to pay the rest Thursday morning. They never came back, so we think we got enough for the time they were there.

Mr. ———: What about the Wild West shows?

Mr. Nowlin: I never saw a Wild West show on the fair ground that was worth going to see.

Mr. Thompson: What advantages have you found in getting the people's money by selling cheap jewelry over paddle-wheels and that sort of thing?

Mr. Nowlin: I think there is a great deal of difference. When a man walks up and buys some wire jewelry he knows what he is getting; there is no game of chance there whatever. He knows it is cheap stuff when he buys. The jewelry man is always sure to make nine cents profit on every ten cent piece of jewelry he sells, and we usually tell him we want part of that when we sell him the privilege.

Mr. McDonald: I should like to know of some way by which to get what we pay for when we sell privileges to the dining-hall people.

Mr. Nowlin: The only way I know is to be the first man at the table. That is something we can not control.

The discussion of the next number on the program, "What Recognition and Courtesies Should be Shown Exhibitors?" was led by Hon. J. Q. Thomas, who said:

The original purpose of fairs was educational and, incidentally, a place where the people could annually meet for social enjoyment.

In their establishment our fathers builded even better than they knew. They grew in public favor from the beginning and increased in value and usefulness as their influence extended and their purpose was better understood.

There has been no factor in the development of our country of so great consequence to agriculture and all its kindred interests, including manufacture, as the fairs. There the people could meet to compare experiences and discuss the most successful methods, and by this interchange of thought, in the presence of the best specimens of stock, fowls, farm products, manufacture and art, obtain practical information highly profitable to them in their several vocations.

These conditions obtain as much today as at any time in the past. The fair is just as much an educational institution now as ever before, especially since all lines of industry have been reduced to a science, and the exhibitors are the most potent factors in creating and maintaining them. And when a company of these advanced thinkers assemble, with their products, within the confines of the fair grounds, they attract more attention and create more enthusiasm than all other features combined.

Proper amusements of all kinds and brass bands are all right in their places, but without the exhibitor they are "as sounding brass or a tinkling cymbal." No exhibitor, no fair, has become a truism.

Many people attend the fairs for the purpose of being amused and entertained; and since there have been so many amusements and attractions of modern character provided for the people, at least for their money, and since it seems that we have reached the limit of everything new, it is not surprising that, now and then, some croaker tells us that the day of the fair and its exhibitor has gone by.

My experience of twenty-five years in connection with fair management convinces me that as to the fair run solely for the amusement of the people, or after the manner of our fathers, the statement is true, and an attempt to so conduct it would be the merest folly; as much so as to attempt to harvest a crop with the reaping-hook. But it is not true of the fair demanding and maintaining a high standard of excellence in every department, that keeps abreast of the progress of the age. There is a demand for such fairs and they are now and will continue to be liberally patronized and maintained.

Exhibitors understand that the old order of things has passed away and are fully in accord with the progressive idea, for which they claim they are responsible. Formerly each person in the neighborhood of a fair having a good specimen of flock or field took it to the exhibition. If of vegetable, fruit or grain it was placed upon an improvised table in an open shed,

If from dairy or the kitchen, it was wrapped in a cloth and placed alongside the cabbage. If a horse or a cow it was tied to the fence; or a pig or lamb it was placed in a rail pen with some leafy branches of trees placed above to protect it from the rays of the autumnal sun. These conditions exhibitors endured because it was the best the management could afford and oftentimes the products were in keeping with the accommodations.

Since the various products have been brought to such a high degree of development, instead of the people, generally, taking their products to the fair, they go to see what others have accomplished and profit by their experience and investigation, and the exhibitors in all classes have become less in number and more or less professional. This necessarily must be so, since, on every farm and in every home, the latest and best can be found, and the people who have the courage to compete in the exhibition

hall or ring must feel assured that they have reached the summit in their several lines of industry, if they are to receive even a passing notice from the average farmer or artisan.

And, by reason of these facts, the expenses, needs and requirements of the exhibitors at the several places of exhibition have been correspondingly increased. After all this labor and expense has been incurred in preparing for and making the exhibition, they have a right to, and do expect that their efforts will be recognized and respected, not only by the small premium offered, but also by every comfort and protection that can be thrown about them by the management they have honored by their presence and with their exhibits, and the fair of the future, in addition to the usual courtesies, will accord them free admission, free rental and free entries.

The management should provide ample and comfortable buildings for exhibits and an advantageous place for exhibiting, that the exhibitors and the visitors patronizing the fair may receive the greatest possible pleasure and profit.

Great precaution should be taken to avoid dissatisfaction in making awards. To this end the single judge system seems to have proven the most satisfactory. These should be persons of acknowledged qualification and integrity, and the greatest discretion should be exercised in their selection, that all suspicion of injustice or favoritism may be reduced to the minimum.

Every fair should be provided with special committees, composed of pleasant, courteous gentlemen, and those having in charge the care of exhibitors should receive them at the gate, escort them to their assignments, turn them over to the superintendent of the department to which they properly belong, see that they are comfortably situated and every want anticipated.

They should call upon them frequently during the exhibition, introduce them to the people, especially in the same line of business, thus helping them to form acquaintances which may become pleasant as well as profitable afterwards. In short, make them feel that they are welcome and are really the guests of the management.

Each department should have one or more competent superintendents who are not averse to becoming useful as well as ornamental. They should make every preparation in advance for the reception and care of the maximum number of exhibits, that there may be no delay or inconvenience to the exhibitors upon arrival.

They should be resourceful people and, in advance of the fair, put themselves in communication with exhibitors throughout the country, with the purpose of securing their attendance, and encourage those who are unable to attend to place their exhibits in their care, that their departments may be complete at the date of the exhibition.

These observations might be indefinitely extended, but I conclude with saying that exhibitors being educators in their respective lines, the management will not hesitate to encourage them in every possible way, and satisfied exhibitors being the fair's best advertisers, a wise management will seek to cultivate with them the most friendly relation.

Mr. Tilson: I should like to ask if it is the custom usually to ask the exhibitors to pay a gate fee when they exhibit something for which there is no premium offered? We have some exhibitors of that kind come to our fairs. No premium is offered for their class of exhibits. Other fairs give them their space and a certain number of tickets. Is that the custom? Our county fairs ought to have a uniform rule to govern that class of exhibits.

Mr. Tuell: At the Corydon fair we never charge exhibitors of articles for which no premium is offered.

Mr. Insley: I think that is the rule that prevails in most societies, and it is one that is often abused. Our Secretary and Treasurer are often called upon by dealers—not by men representing the manufacturers—but our local dealers, who come to the Secretary and say: "I have a representative from the manufacturers that is coming here, and I would like to have eight or ten tickets for him. Mr. So and So will be working for me out there this week, and as I can not leave my store I want tickets for him." This is an abuse, but it is one the associations will probably have to tolerate.

Robert Mitchell: We try to make everything as easy as possible for the exhibitor. Stables are furnished free, straw is free, tickets are furnished for the exhibitors and for the help, and everything possible is done to make them welcome. There is, however, one thing that the fair managers have not paid enough attention to, and that is uniform rules in regard to exhibitors. We are continually in trouble on account of the different managements. We can not afford to tax the parties who make the exhibits more than is absolutely necessary. As this paper says, the expenses should be as light as possible upon the exhibitors, because

they are the ones that make the fair. In some of the fairs in European countries they offer bonuses to men who have fine exhibits to get them to come. Of course we do not need to do that, but still we should be as liberal with them as possible, for to them we owe much of the success of our fairs.

Professor Skinner: Is it the custom in most of the county fairs to pay a premium when there is only one herd in the exhibition? Occasionally there will be a herd of Herefords. What is the custom of the fairs as to giving premiums when only one herd is exhibited?

Robert Mitchell: So far as I know they pay the premium. The man who has the herd has come there in good faith and he should have the premium.

Professor Skinner: I find there is a difference of opinion on that point in different counties.

Mr. Tilson: We pay that premium if the herd is worthy of a premium. That is specified in our premium list. If it is not worthy of a premium we give none; if it is, the exhibitor of the herd gets the premium.

Mr. Insley: What would your instructions to your judge be if you had a class exhibit and there was nothing in a class worthy of a premium?

Mr. Tilson: I should say give first, second or third if they were entitled to it. If nothing worthy of a premium was shown, we do not give it.

The next subject, "Special Attractions; Do They Pay?" was led by W. S. Young, of Franklin, who said:

I will say "Yes, with qualifications."

There can scarcely be named an institution of local origin that will so interest the people of a community or a county and cause them to turn out and mingle together as an attractive county fair. It will, when prop-

erly managed, not only command the respect, support and confidence of the people of the county, but its influence reaches out to the people of adjoining counties, who become interested and show their interest and appreciation by their attendance and patronage. In short, the county fair becomes an event of great importance. It brings the county into prominence and in many ways is helpful in developing and brightening the intelligence of its people in the art of agriculture and kindred work. It is truly an educational institution and should be so conducted as to make this feature of its usefulness the one thing essential above all others. I feel that nothing should be permitted in connection with the fair that does not have the approval of the people of the county.

But aside from this, and aside from those who make the exhibits and in other ways contribute to its success for a money consideration, and aside from those more directly interested in its education features, it has been found necessary to provide suitable entertainment and amusement for those in attendance. Children attending school need rest, as you know, and also amusement to help them along in their school work. So it is with the county fair. It seems necessary for the management to provide special features to meet the wants and desires of those who throng the grounds for that purpose. The masses go there for entertainment and amusement, and entertainment and amusement they must have.

People are social beings and in a social way naturally crave and enjoy the pleasures and diversions that go to make up the cheery side of life. So the county fair is looked forward to by the masses of the people as a time for rest, social enjoyment and amusement.

I have found from my research into pioneer days that the special features of the fairs then consisted usually of slow mule races, foot races, wheelbarrow races and other "funny" things, simple and inexpensive, the favorite attraction being that of contests in ladies' side-saddle horseback riding. I may also add that it was the custom in Johnson County in those early days to invite some distinguished person to deliver an address some time during fair week. Later on the favorite saddle steed gave way to the favorite in harness on the race track. Gradually thereafter the speed program became the leading feature in the list of all the special attractions of a successful county fair.

THE RACES.

"There is magic in the races,
Everybody watches when they go;
Nothing at the fair suits better,
It's the climax of the show.

"When the bell rings up the horses,
How the people start and run,
Deacons old, as well as laymen,
Much enjoy the fun.

"And the halls are then deserted,
While the fakir's place is bare,
Everybody wants to view the races,
'Agricultural' as they are.

"How the people shout and halloo,
When they're coming down the stretch,
Where each driver does his prettiest
The leading horse to catch.

"It helps the old grow younger,
Brings fond remembrance back,
And the slumbering fires rekindle
As they glide around the track.

"It makes the weak grow stronger
And puts their hearts afire;
Nothing seen is more exciting
Than the struggle for the wire.

"Amusements they are innocent,
Conducted on the square,
Will hurt no one to patronize
As you'll see them at the fair."

The people attending a county fair are, as a rule, content during the forenoon in looking through the exhibition departments, watching the judges making awards and tying on the ribbons and by amusing themselves in many other ways of a social character. But it is expected and understood that immediately in the afternoon, entertainment shall be provided for them. It seems, too, that the time has come when the races alone are not enough to meet and satisfy their wants in this regard. I

want to say here that I believe the time may come, in part, at least, unless racing rules are so amended as to insure honest competition and fair speed contests, when the races may be set aside and the money paid out on that account put into other special features with equal or greater remunerative results to the associations.

A good special attraction is popular, and generally is appreciated by the people. But they are quick to catch on and show their disapproval for too much of the ludicrous, fake or lewd attractions. So they are equally quick to catch on and show their dislike for the unfair conduct and trickery of speed-horse men, which is frequently permitted to creep in and detract from the pleasures that should be derived from the speed program.

Special attractions will pay, and richly pay, if they are not too expensive in proportion to the receipts of the association procuring them. I mean by this that no association can afford to appropriate and promise more money in payment of premiums, races and the running expenses, including special attractions, than the average receipts of the association will permit.

Special attractions are a great help in the way of advertising the fair. But even in this particular there should be no exaggeration. It should be of such a character that every man, woman and child attending the fair, attracted there by the promise of such special attraction, should be able to get value received in both money and time expended.

Now a word more in a general way. I believe the managers of associations should not only be careful in the procurement of special features, but they should guard closely every other avenue calculated to impair its standing and usefulness. It is their duty to manage in such a way as not only to furnish the people with entertainment and amusement, but to try to educate them along the line of agricultural pursuits, bearing in mind that it is a higher duty to throw around them such influences as will educate and help them to a higher and better citizenship. To do this is to encourage a community of interests, which is essential to the highest success of a county fair.

The discussion on "Art and Value of Advertising" was led by J. E. McDonald, who said:

When an individual starts a large store he buys what, in his opinion, he can sell to the people. He reasons that a certain part of his community will want this, and that another part will want something else. He reasons that he will be able to sell so much of one kind of cloth and so much of another kind, and he piles those two kinds on his shelves. Then he thinks of the other important part of his business, the customer who must come to him. So it is in fair management. After the fair is arranged for, an important factor to the fair management is the man

who passes the gates and does not carry a complimentary; the man who passes the gates and carries what he has paid fifty cents for. How are you going to interest that individual, how are you going to reach him, and how are you going to get him to pay railroad fare and money to get through the gates? This thing has been a factor in business ever since business has been transacted, and there is no condition of affairs that confronts the American merchant or manufacturer or American fair manager that is more important than how to reach the people and interest them in what he has to sell.

The field of advertising is so broad and the ideas so diversified that it would be impossible for me to cover this field in any talk that I might give here. I believe the most potent method of advertising in America today is the newspaper. I believe a local newspaper can do a fair more good or more harm than any other agency in the community. I believe that every county fair and every State fair that goes to the people for support must have the moral as well as the financial support of the country press. The way to get that is to get it as a business man would get it, on a square business proposition. Say that you want so much advertising and you are going to allow so much for it. If the newspaper man has any interest in you or in the community you will get the worth of your money. When I first came on the Indiana State Board of Agriculture there was a system of advertising that is not in existence now. I have always believed that advertising pays. If you can make the people believe that what you say is true, it will always pay. Never advertise anything you haven't got; never advertise anything in your county fair that you are not going to have, never advertise a premium unless you are going to pay it. Always carry out what you advertise. The great advertisers of this country gained their prominence from the fact that they always did what they advertised to do. Those men advertised what they had to sell, and they sold it as advertised. That is exactly what a county or State Fair must do to make advertising pay. I heard a criticism made upon the report that was read here some time ago. A man near me nearly fell off his chair when he heard the item read, "\$5,000 for newspaper advertising." He said that ten years ago they did not pay out a thousand dollars. He might go back farther than that and say that twenty years ago they did not pay five hundred. There is nothing in American business today that has become so necessary as advertising, and nothing in American business has grown in expense like advertising. When I was in the newspaper business a great many years ago the advertising department was not the one we paid most attention to. Today the newspaper is run on different lines. Newspaper advertising has grown to be a business, and consequently when you go into a newspaper office and ask for space you have to pay for it. Years ago when my father was Secretary of a county fair he used to get about five hundred bills printed, put me in an old spring wagon, with a bucket of paste, and

I would start out and do the advertising. I would work all the first day, stay over night at some friend's house, work the next day, get half of the bills pasted up and throw the rest in a fence corner. That is how the fairs were advertised in those days. And that sort of advertising was perhaps sufficient for those days. The fair was probably the only entertainment of its kind for twenty-five or thirty miles, and everybody was anxious to go. A great many years ago, I was a sort of supernumerary about a hardware store. Not long ago I went over the papers and books of that store in settling up an estate. Among the old bills I saw one that was presented by the Columbia City News in 1863 for advertising. The bill for the entire year was only six dollars. In looking over the books for the year in which I helped settle up the estate I found that the bill for advertising in the Columbia City Post was \$600.

I believe that dead wall advertising is a good thing if properly done. I mean that advertising which is put up in conspicuous places for the busy man that just glances at things and passes on. I believe advertising of that kind should be attractive, and of such a character as to attract the man as often as he goes by. He will begin to think after seeing it a few times that he had better attend the fair. This sort of advertising need not enter into particulars about the fair, but should just keep the fact that a fair is to be held before the people.

I believe in artistic advertising, but I do not believe that the returns from the money spent in that kind of advertising will warrant its being done to the exclusion of newspaper advertising. I believe that several good advertisements in the Indianapolis newspapers that circulate all over the State of Indiana will do the State Fair more good than three times the amount the cost spent on any other kind of advertising.

Lastly, I believe that we should keep everlastingly at advertising. It will bring an attendance to the fairs that we can not get in any other way. I believe that the advertising that comes from a good show is a most important factor. This is true of both county and State fairs. The reputation of any institution is of great importance to it. If you have a good fair one year you will notice an increased attendance at your next fair, even if you do not do any more advertising. The best advertising, therefore, that you can do is to follow an established rule in keeping up the excellence of your exhibits and doing exactly what you say in your programs you will do. Then treat your exhibitors as they ought to be treated and your advertising will pay.

Let me say again, that the men who make public sentiment, the men who mould the ideas and opinions of your community are the men who have control of the newspapers, and they are the men who should be and will be, and ought to be, friendly to public institutions such as county fairs and State fairs if properly encouraged. Men are nearly all alike in some respects, and in advertising we ought at all times to go on the theory of the Golden Rule, that is, we should treat all men as we should

like to be treated. If we will do that we will have a good show, well advertised, and at the same time interest the men who can bring about a good attendance. The country editor, like the city editor, some years ago arrived at the conclusion that their advertising must be paid for. The management of the State Fair realized this as a wise conclusion and has been paying the country press. I do not think we have paid them nearly what they have earned, but we have been gradually increasing the amount we have been paying because their services have been growing in excellence year after year. I think last year we paid them a little over \$2,200. I believe that \$2,200 that was paid the papers outside of Indianapolis was the most profitably spent money we paid out last year, and I believe we have a better sentiment towards the State Fair and all other fairs from the country than we have ever had before.

Mr. Insley: This concludes the program prepared for the meeting. The next thing in order is the election of a President for the Association for the coming year.

The present President, Mr. Insley, was nominated, and, on motion, the Secretary was instructed to cast the ballot of the Association for Mr. Insley for President for the coming year.

Mr. Blackstock, the present Secretary, was nominated, and, on motion, Mr. McDonald was instructed to cast the ballot of the Association for him.

Mr. Insley: I thank you, gentlemen. I believe the discussion we have been having this afternoon has been of benefit to every fair man in attendance. I would like to have more of it next year. If you could see the program of the Ohio Fair Managers' Association, which covers two days, it would interest you and show what an association of that kind can do. The meeting is at your pleasure, gentlemen.

The meeting was adjourned sine die.

The following is a complete list of all awards made at the State Fair of 1902:

INDIANA STATE FAIR, 1902.

SPEED PROGRAM.

MASON J. NIBLACK, Vincennes, Superintendent.
M. A. McDONALD, West Lebanon, Starting Judge.

W. W. MORGAN, }
O. L. BOOR, } Judges.
M. A. McDONALD, }

E. R. STOLL, }
D. D. PEARSON, } Timers.
R. A. BROWN, }

F. A. WISEHART, Clerk of Course.

AWARDS.

TUESDAY, SEPTEMBER 16.

2:30 Trot—\$500 divided—\$250, \$125, \$75, \$50.

Alfred Starr, br. s.....	9	5	1	1	1
Byron Patch, b. g.....	4	2	4	5	2
Edgewood Bell, blk. m.....	5	8	2	3	3
Jessie M, b. m.....	12	9	7	2	4
Orphan, b. g.....	2	6	9	7	7
John Thomas, g. g.....	3	3	10	6	6
Director Bell, blk. s.....	7	10	5	4	5

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:34	1:08	1:45	2:20
Second heat	:36 $\frac{1}{2}$	1:08 $\frac{1}{2}$	1:43 $\frac{1}{2}$	2:18 $\frac{1}{4}$
Third heat	:34 $\frac{3}{4}$	1:08 $\frac{3}{4}$	1:42 $\frac{1}{2}$	2:17
Fourth heat	:32 $\frac{1}{2}$	1:07	1:41	2:14 $\frac{1}{4}$
Fifth heat	:33 $\frac{3}{4}$	1:06 $\frac{1}{2}$	1:40	2:15 $\frac{1}{2}$

2:08 Pace—\$900 divided—\$450, \$225, \$135, \$90.

The Bishop, b. g.....	1	1	1
Milton S., b. s.....	2	3	4
Nervola, b. s.....	8	2	3
New Richmond, g. s.....	11	5	2
Challie Downing, ch. m.....	3	7	8
Byrl Wilkes, br. g.....	9	4	6
Ruby Mac, g. m.....	4	9	9
Balmy L., br. m.....	6	6	5
Geo. Castle, b. g.....	5	10	10
Mira, b. m.....	7	11	7

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:31 $\frac{1}{4}$	1:03 $\frac{1}{2}$	1:36 $\frac{1}{4}$	2:09 $\frac{1}{2}$
Second heat	:32 $\frac{1}{2}$	1:03	1:34 $\frac{3}{4}$	2:06 $\frac{1}{4}$
Third heat	:32	1:04	1:33	2:06

Kentucky Stock Farm Expectation Purse, \$1,000—Pacing Division.

Coast Marie, blk. f.....	2	1	1	1
Ethel Evans, blk. f.....	1	2	2	2

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:32 $\frac{1}{2}$	1:04 $\frac{1}{2}$	1:39	2:17
Second heat	:39	1:05 $\frac{1}{2}$	1:51	2:27
Third heat	:35	1:11	1:45 $\frac{1}{4}$	2:20
Fourth heat	:33	1:06 $\frac{1}{2}$	1:43	2:26

WEDNESDAY, SEPTEMBER 17.

2:25 Pace—\$500 divided—\$250, \$125, \$75, \$50.

Leafy, b. m.....	1	1	1
Darkway, blk. s.....	2	2	2
Pearl T., b. m.....	3	4	7
Billy, b. g.....	7	7	3
Riley McKeene, b. h.....	6	6	4
Ravenna Wilkes, b. m.....	5	5	5

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:33	1:05	1:39	2:11 $\frac{1}{2}$
Second heat	:33	1:05	1:38 $\frac{1}{2}$	2:10 $\frac{1}{2}$
Third heat	:33	1:05 $\frac{1}{2}$	1:39	2:12 $\frac{1}{4}$

2:11 Trot—\$800 divided—\$400, \$200, \$120, \$80.

The King, b. g.	1	1	1
Charlie Mc., blk. g.	3	2	2
Elsie S.,	2	5	5
Lilly Young,	7	3	3
Aggie Medium, b. m.	11	4	4
Miss Sligo, b. m.	5	6	9
Wm. Tell, b. g.	9	8	6
Black Lady, b. m.	6	9	8
Gavatta, b. m.	10	7	7

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:31	1:03 $\frac{1}{2}$	1:36 $\frac{1}{2}$	2:10 $\frac{3}{4}$
Second heat	:33	1:05 $\frac{1}{2}$	1:37 $\frac{1}{2}$	2:10 $\frac{1}{2}$
Third heat	:32 $\frac{1}{2}$	1:05	1:37	2:10 $\frac{3}{4}$

2:17 Pace—\$600 divided—\$300, \$150, \$90, \$60.

Ax, br. g.	13	1	1
Red Patchen, s. s.	1	4	2
Tommy Mc., b. g.	2	3	6
Alma G., ch. m.	7	2	9
Little Sphinx, b. m.	3	6	3
Daisy Field, ch. m.	4	5	4
Don Carr, blk. g.	6	13	5
Frank McKinney	5	10	15

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:32	1:03 $\frac{1}{2}$	1:36	2:10 $\frac{1}{4}$
Second heat	:31 $\frac{1}{4}$	1:04	1:36	2:09 $\frac{1}{4}$
Third heat	:32 $\frac{1}{2}$	1:04	1:36	2:09 $\frac{1}{4}$

MONDAY, SEPTEMBER 22.

Trotting Division—Kentucky Stock Farm Expectation Purse, \$5,000
divided—\$2,500, \$1,250, \$750, \$500.

Red Robe, b. f.....	2	3	3	6	5
Sister Collett, b. f.....	6	6	6	5	6
John Mc.	3	2	2	1	1
Pat Henry, b. c.....	5	1	1	4	4
Gail Hamilton, b. f.....	1	5	4	3	2
Nella Jay, r. f.....	4	4	5	2	3

TIME.

	$\frac{1}{4}$ Mile.	$\frac{1}{2}$ Mile.	$\frac{3}{4}$ Mile.	Mile.
First heat	:34	1:07	1:42	2:15
Second heat	:32	1:05	1:40	2:14 $\frac{1}{2}$
Third heat	:34	1:07	1:41	2:16 $\frac{1}{2}$
Fourth heat	:35 $\frac{1}{4}$	1:09	1:45	2:18 $\frac{1}{4}$
Fifth heat	:36	1:11	1:45	2:19

HORSES.

CLASS I—French Draft and Percheron.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

STALLIONS.

Four years old and over, Jas. M. Dye & Co., Zionsville, Ind.....	\$25 00
Second premium, J. Crouch & Son, Lafayette, Ind.....	15 00
Third premium, J. Crouch & Son, Lafayette, Ind.....	10 00
Three years old and under four, J. Crouch & Son, Lafayette, Ind..	15 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	10 00
Third premium, J. Crouch & Son, Lafayette, Ind.....	6 00
Two years old and under three, J. Crouch & Son, Lafayette, Ind...	12 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	8 00
Third premium, Lew W. Cochran, Crawfordsville, Ind.....	5 00
One year old and under two, Lew W. Cochran, Crawfordsville, Ind.	10 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	6 00
Third premium, J. Crouch & Son, Lafayette, Ind.....	4 00
Stallion showing four best colts under four years, Lew W. Cochran, Crawfordsville, Ind.	25 00

MARES AND FILLIES.

Four years old and over, A. P. Nave, Attica, Ind.....	25 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	15 00
Third premium, A. P. Nave, Attica, Ind.....	10 00
Mare, two years old and under three, A. P. Nave, Attica, Ind.....	12 00
One year old and under two.....	

CLASS II—Clydesdales and English Shires.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

STALLIONS.

Four years old and over, Finch Bros., Joliet, Ill.....	\$25 00
Second premium, Finch Bros., Joliet, Ill.....	15 00
Third premium, Finch Bros., Joliet, Ill.....	10 00
Three years old and under four, Finch Bros., Joliet, Ill.....	15 00
Second premium, Geo. Sangster, Monticello, Ind.....	10 00
Third premium, Finch Bros., Joliet, Ill.....	6 00
Two years old and under three, Finch Bros., Joliet, Ill.....	12 00
Second premium, W. H. Lagrange & Son, Franklin, Ind.....	8 00
Third premium, Lew W. Cochran, Crawfordsville, Ind.....	5 00
One year old and under two, Lew W. Cochran, Crawfordsville, Ind.	10 00
Second premium, Finch Bros., Joliet, Ill.....	6 00
Stallion showing four best colts under four years, Finch Bros., Joliet, Ill.	25 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	15 00

MARES AND FILLIES.

Four years old and over, Finch Bros., Joliet, Ill.....	25 00
Second premium, W. H. Lagrange & Son, Franklin, Ind.....	15 00
Third premium, Geo. W. Francis, Darlington, Ind.....	10 00
Three years old and under four, Geo. W. Francis, Darlington, Ind.	15 00
Two years old and under three, Finch Bros., Joliet, Ill.....	12 00
Second premium, W. H. Lagrange & Son, Franklin, Ind.....	8 00
Third premium, W. H. Lagrange & Son, Franklin, Ind.....	5 00
One year old and under two, E. W. Pickard, Summitville, Ind.....	10 00
Second premium, Finch Bros., Joliet, Ill.....	6 00

CLASS II—Cleveland Bay, Hackney and American Coach.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

STALLIONS.

Four years old and over, Lew W. Cochran, Crawfordsville, Ind....	\$25 00
Second premium, J. Crouch & Son, Lafayette, Ind.....	15 00
Third premium, Lon Young, Crawfordsville, Ind.....	10 00

Three years old and under four, J. Crouch & Son, Lafayette, Ind..	15 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	10 00
Third premium, Finch Bros., Joliet, Ill.....	6 00
Two years old and under three, J. Crouch & Son, Lafayette, Ind..	12 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	8 00
Third premium, J. Crouch & Son, Lafayette, Ind.....	5 00
One year old and under two, J. Crouch & Son, Lafayette, Ind.....	10 00
Second premium, Lew W. Cochran, Crawfordsville, Ind.....	6 00
Third premium, Lon Young, Crawfordsville, Ind.....	4 00
Stallion showing four best colts under four years, Lew W. Cochran, Crawfordsville, Ind.	25 00
Second premium, J. R. Peake, Winchester, Ill.....	15 00

MARES AND FILLIES.

Four years old and over, J. R. Peake, Winchester, Ill.....	25 00
Second premium, Lon Young, Crawfordsville, Ind.....	15 00
Third premium, Lew W. Cochran, Crawfordsville, Ind.....	10 00
Three years old and under four, J. R. Peake, Winchester, Ill.....	15 00
Second premium, Lon Young, Crawfordsville, Ind.....	10 00
Third premium, Geo. W. Francis, Darlington, Ind.....	6 00
Two years old and under three, J. R. Peake, Winchester, Ill.....	12 00
One year old and under two, Geo. W. Francis, Darlington, Ind....	10 00
Second premium, J. R. Peake, Winchester, Ill.....	6 00
Third premium, Lon Young, Crawfordsville, Ind.....	4 00

CLASS IV—French and German Coach.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

STALLIONS.

Four years old and over, J. Crouch & Son, Lafayette, Ind.....	\$25 00
Second premium, Lon Young, Crawfordsville, Ind.....	15 00
Third premium, Lew W. Cochran, Crawfordsville, Ind.....	10 00
Three years old and under four, J. Crouch & Son, Lafayette, Ind..	15 00
Second premium, J. Crouch & Son, Lafayette, Ind.....	10 00
Third premium, J. Crouch & Son, Lafayette, Ind.....	6 00
One year old and under two.....	
Stallion showing four best colts under four years, Lon Young, Crawfordsville, Ind.	25 00

MARES AND FILLIES.

Four years old and over, J. Crouch & Son, Lafayette, Ind.....	25 00
Second premium, J. Crouch & Son, Lafayette, Ind.....	10 00
Three years old and under four, J. Crouch & Son, Lafayette, Ind..	15 00
Two years old and under three, J. Crouch & Son, Lafayette, Ind....	12 00
One year old and under two, Lon Young, Crawfordsville, Ind.....	10 00

CLASS V—Grade Draft.

Gelding or mare two years old and under three, Geo. W. Francis, Darlington, Ind.	10 00
Best span of heavy draft horses, mares or geldings, any breed, in harness, Finch Bros., Joliet, Ill.	40 00
Second premium, Geo. W. Francis, Darlington, Ind.	30 00
Third premium, N. P. Nave, Attica, Ind.	15 00

CLASS VI—Light Harness Horses.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

STALLIONS.

Stallion four years old and over, J. R. Peake, Winchester, Ill.	\$25 00
Second premium, Thomas Levi, Noblesville, Ind.	15 00
Third premium, Indiana Horse Breeder Co., Indianapolis.	10 00
Three years old and under four, J. R. Peake, Winchester, Ill.	15 00
Second premium, Indiana Horse Breeder Co., Indianapolis.	10 00
Third premium, Thomas Levi, Noblesville, Ind.	6 00
Two years old and under three, J. Crouch & Son, Crawfordsville, Ind.	12 00
Second premium, T. G. Disher, Indianapolis.	8 00
Third premium, E. M. Pickard, Summitville, Ind.	5 00
One year old and under two, Sterling R. Holt, Indianapolis.	10 00
Second premium, J. Crouch & Son, Crawfordsville, Ind.	6 00
Third premium, J. Crouch & Son, Crawfordsville, Ind.	4 00
Stallion showing four best colts under four years, J. R. Peak, Winchester, Ill.	25 00
Second premium, Sterling R. Holt, Indianapolis.	15 00

MARES AND FILLIES.

Four years old and over, Lon Young, Crawfordsville, Ind.	25 00
Second premium, J. R. Peake, Winchester, Ill.	15 00
Third premium, Lon Young, Crawfordsville, Ind.	10 00
Three years old and under four, J. R. Peake, Winchester, Ill.	15 00
Second premium, Lon Young, Crawfordsville, Ind.	10 00
Third premium, J. R. Peake, Winchester, Ill.	6 00
Two years old and under three, J. R. Peake, Winchester, Ill.	12 00
Second premium, J. R. Peake, Winchester, Ill.	8 00
Third premium, D. B. Riggs, Franklin, Ind.	5 00
One year old and under two, J. R. Peake, Winchester, Ill.	10 00
Second premium, J. W. Losh, Indianapolis.	6 00
Third premium, Indiana Horse Breeder Co., Indianapolis.	4 00

Mare and two of her progeny three years old or under, J. R. Peake, Winchester, Ill.	25 00
Second premium, J. R. Peake, Winchester, Ill.	15 00
Third premium, J. R. Peake, Winchester, Ill.	10 00
Gelding four years old and over, Lon Young, Crawfordsville, Ind. .	25 00
Second premium, James Montgomery, Indianapolis.	15 00
Third premium, John Hernley, New Castle, Ind.	10 00

CLASS VII—Best and Best Appointed Gentleman's Pair Turnout—Dealers
in Horses Excluded.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Pair of mares or geldings, not under fifteen hands, F. M. Rottler, Indianapolis	\$30 00
Second premium, H. H. Palin, Crawfordsville, Ind.	20 00

CLASS VIII—Best and Best Appointed Gentleman's Fair Turnout—For
Dealers Only.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Pair of mares or geldings, not under 15 hands, Lon Young, Craw- fordsville, Ind.	\$30 00
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CLASS IX—For Four-in-Hand.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

For the best four-in-hand team (mares or geldings), four years old and over to be shown before break, coach or heavy carriage, H. M. Reardon, Indianapolis.	\$40 00
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CLASS X—For Tandems.

No awards.

CLASS XI—For High Steppers.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Single horse, high stepper (mare or gelding) not more than 15¼ hands, Lon Young, Crawfordsville, Ind.	\$20 00
Second premium, John Hernley, New Castle, Ind.	15 00

CLASS XII—Equipages.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

One horse, one-seated equipage for lady, Lew W. Cochran, Crawfordsville, Ind.....	\$20 00
Second premium, Mrs. Joseph Thorne, Indianapolis.....	15 00
Third premium, Mrs. H. C. Knode, Indianapolis.....	10 00
Vehicle for children, Lew W. Cochran, Crawfordsville, Ind.....	20 00
Second premium, W. B. Blair, Jr., Indianapolis.....	15 00
Third premium, E. W. Pickard, Summitville, Ind.....	10 00

CLASS XIII—Coach and Carriage Pair and Roadsters.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Coach or carriage pair, J. R. Peake, Winchester, Ill.....	\$30 00
Second premium, Lon Young, Crawfordsville, Ind.....	20 00
Third premium, H. H. Palin, Crawfordsville, Ind.....	10 00
Single roadster (mare), Lon Young, Crawfordsville, Ind.....	30 00
Second premium, J. R. Peake, Winchester, Ill.....	20 00
Third premium, J. R. Peake, Winchester, Ill.....	10 00
Single roadster (gelding), M. H. Reardon, Indianapolis.....	30 00
Second premium, John Hernley, Summitville, Ind.....	20 00
Double roadster, J. R. Peake, Winchester, Ill.....	30 00
Second premium, Lon Young, Crawfordsville, Ind.....	20 00
Third premium, H. H. Palin, Crawfordsville, Ind.....	10 00

CLASS XIV—Saddle Horses.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Best saddle stallion, C. D. McKenzie, Sabina, Ohio.....	\$40 00
Second premium, John V. Connolly, Madison, Ind.....	20 00
Best saddle mare, John V. Connolly, Madison, Ind.....	40 00
Second premium, John V. Connolly, Madison, Ind.....	20 00
Third premium, C. D. McKinzie, Sabina, Ohio.....	15 00
Best saddle gelding, W. E. English, Indianapolis.....	40 00
Second premium, John V. Connolly, Madison, Ind.....	20 00
Third premium, C. D. McKinzie, Sabina, Ohio.....	15 00
Best ladies' saddle mare or gelding, John V. Connolly, Madison, Ind.....	40 00
Best gaited performer, John V. Connolly, Madison, Ind.....	40 00
Second premium, C. D. McKinzie, Sabina, Ohio.....	20 00
Third premium, W. E. English, Indianapolis.....	15 00
Sweepstakes, best saddle stallion, mare or gelding, John V. Connolly, Madison, Ind.....	50 00

CLASS XV—Ponies, All Breeds.

(G. W. Bell, Judge, Union Stock Yards, Chicago, Ill.)

Pony, 11 hands or under, in single harness, E. M. Pickard, Summitville, Ind.	15 00
Pony, 11 to 13 hands, in single harness, L. W. Cochran, Crawfordsville, Ind.	15 00
Pony, 13 to 14½ hands, in single harness, W. B. Blair, Jr., Indianapolis	15 00
Ponies, tandem, W. B. Blair, Jr., Indianapolis.	15 00

CATTLE. (BEEF BREEDS.)

CLASS XVI—Shorthorns.

(Omer C. Bigler, Judge, Hartwick, Iowa.)

BULLS.

Three years old and over, G. M. Casey, Clinton, Mo.	\$25 00
Second premium, Geo. Harding & Son, Waukesha, Wis.	15 00
Third premium, E. N. Bowen, Delphi, Ind.	5 00
Two years old and under three, Geo. Harding & Son, Waukesha, Wis.	20 00
Second premium, W. F. Christian & Son, Indianapolis.	10 00
Third premium, Moorman & Miller, Winchester, Ind.	4 00
One year old and under two, Geo. Harding & Son, Waukesha, Wis.	15 00
Second premium, J. G. Robbins & Sons, Horace, Ind.	6 00
Third premium, G. M. Casey, Clinton, Mo.	3 00
Calf under one year old, D. R. Hanna, Ravenna, Ohio.	8 00
Second premium, G. M. Casey, Clinton, Mo.	3 00
Third premium, D. R. Hanna, Ravenna, Ohio.	2 00

COWS AND HEIFERS.

Three years old and over, G. M. Casey, Clinton, Mo.	25 00
Second premium, D. R. Hanna, Ravenna, Ohio.	15 00
Third premium, E. W. Bowen, Delphi, Ind.	5 00
Two years old and under three, G. M. Casey, Clinton, Mo.	20 00
Second premium, D. R. Hanna, Ravenna, Ohio.	10 00
Third premium, Geo. Harding & Son, Waukesha, Wis.	4 00
One year old and under two, E. W. Bowen, Delphi, Ind.	15 00
Second premium, J. G. Robbins & Sons, Horace, Ind.	6 00

Third premium, J. G. Robbins & Sons, Horace, Ind.....	3 00
Calf under one year old, J. G. Robbins & Sons, Horace, Ind.....	8 00
Second premium, G. M. Casey, Clinton, Mo.....	3 00
Third premium, G. M. Casey, Clinton, Mo.....	2 00
Four animals, either sex, the get of one sire, J. G. Robbins & Sons, Horace, Ind.	20 00
Second premium, D. R. Hanna, Ravenna, Ohio.....	10 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00
Two animals, either sex, the produce of one cow, G. M. Casey, Clinton, Mo.	20 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	10 00
Third premium, G. M. Casey, Clinton, Mo.....	4 00
Exhibitor's herd, G. M. Casey, Clinton, Mo.....	50 00
Second premium, E. W. Bowen, Delphi, Ind.....	25 00
Breeder's herd, J. G. Robbins & Sons, Horace, Ind.....	50 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	25 00

SWEEPSTAKES.

Best bull, any age, G. M. Casey, Clinton, Mo.....	25 00
Best cow or heifer, any age, G. M. Casey, Clinton, Mo.....	25 00

CLASS XVII—Herefords.

(J. G. Imboden, Judge, Decatur, Ill.)

BULLS.

Three years old and over, Clem Graves, Bunker Hill, Ind.....	50 00
Second premium, O. Harris, Harris, Mo.....	30 00
Third premium, J. C. Adams, Moweaqua, Ill.....	10 00
Two years old and under three, Geo. P. Henry, Goodenow, Ill.....	40 00
Second premium, Clem Graves, Bunker Hill, Ind.....	20 00
One year old and under two, O. Harris, Harris, Mo.....	30 00
Second premium, J. C. Adams, Moweaqua, Ill.....	12 00
Third premium, S. J. Peabody, Columbia City, Ind.....	6 00
Calf under one year old, J. C. Adams, Moweaqua, Ill.....	16 00
Second premium, O. Harris, Harris, Mo.....	6 00
Third premium, O. Harris, Harris, Mo.....	4 00

COWS AND HEIFERS.

Three years old and over, O. Harris, Harris, Mo.....	50 00
Second premium, J. C. Adams, Moweaqua, Ill.....	30 00
Third premium, Clem Graves, Bunker Hill, Ind.....	10 00
Two years old and under three, W. S. Van Natta & Son, Fowler, Ind.	40 00
Second premium, O. Harris, Harris, Mo.....	20 00

Third premium, C. A. Jamison, Peoria, Ill.....	8 00
One year old and under two, O. Harris, Harris, Mo.....	30 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.....	12 00
Third premium, J. C. Adams, Moweaqua, Ill.....	6 00
Calf under one year old, O. Harris, Harris, Mo.....	16 00
Second premium, J. C. Adams, Moweaqua, Ill.....	6 00
Third premium, W. S. Van Natta & Son, Fowler, Ind.....	4 00
Four animals, either sex, the get of one sire, O. Harris, Harris, Mo.	40 00
Second premium, W. S. Van Natta, Fowler, Ind.....	20 00
Two animals, either sex, the produce of one cow, J. C. Adams, Moweaqua, Ill.	40 00
Second premium, Clem Graves, Bunker Hill, Ind.....	20 00
Third premium, J. C. Adams, Moweaqua, Ill.....	8 00
Exhibitor's herd, O. Harris, Harris, Mo.....	100 00
Second premium, J. C. Adams, Moweaqua, Ill.....	50 00
Breeder's herd, O. Harris, Harris, Mo.....	100 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.....	50 00

SWEEPSTAKES.

Best bull, any age, Clem Graves, Bunker Hill, Ind.....	50 00
Best cow or heifer, any age, W. S. Van Natta & Son, Fowler, Ind..	50 00

CLASS XVIII—Specials by Indiana State Hereford Breeders' Association.

(J. G. Imboden, Judge, Decatur, Ill.)

BULLS.

Three years old and over, Clem Graves, Bunker Hill, Ind.....	20 00
Second premium, O. Harris, Harris, Mo.....	15 00
Third premium, J. C. Adams, Moweaqua, Ill.....	10 00
Fourth premium, C. A. Jamison, Peoria, Ill.....	8 00
Fifth premium, W. S. Van Natta & Son, Fowler, Ind.....	7 00
Two years old and under three, Geo. P. Henry, Goodenow, Ill....	20 00
Second premium, Clem Graves, Bunker Hill, Ind.....	15 00
One year old and under two, O. Harris, Harris, Mo.....	20 00
Second premium, J. C. Adams, Moweaqua, Ill.....	15 00
Third premium, S. J. Peabody, Columbia City, Ind.....	10 00
Fourth premium, F. L. Studebaker, Warren, Ind.....	8 00
Fifth premium, C. E. Amsden & Son, Shelbyville, Ind.....	7 00
Junior yearling bull, S. J. Peabody, Columbia City, Ind.....	20 00
Second premium, O. Harris, Harris, Mo.....	15 00
Third premium, H. E. Watson, Edinburgh, Ind.....	10 00
Fourth premium, W. M. Kerby, Kokomo, Ind.....	8 00
Calf under one year old, J. C. Adams, Moweaqua, Ill.....	20 00

Second premium, O. Harris, Harris, Mo.....	15 00
Third premium, O. Harris, Harris, Mo.....	10 00
Fourth premium, F. L. Studebaker, Warren, Ind.....	8 00
Fifth premium, W. S. Van Natta & Son, Fowler, Ind.....	7 00

COWS AND HEIFERS.

Two years old and over, O. Harris, Harris, Mo.....	20 00
Second premium, J. C. Adams, Moweaqua, Ill.....	15 00
Third premium, Clem Graves, Bunker, Hill, Ind.....	10 00
Fourth premium, C. A. Jamison, Peoria, Ill.....	8 00
Fifth premium, C. A. Jamison, Peoria, Ill.....	7 00
Two years old and under three, W. S. Van Natta & Son, Fowler, Ind.	20 00
Second premium, O. Harris, Harris, Mo.....	15 00
Third premium, C. A. Jamison, Peoria, Ill.....	10 00
Fourth premium, C. A. Jamison, Peoria, Ill.....	8 00
Fifth premium, J. C. Adams, Moweaqua, Ill.....	7 00
One year old and under two, O. Harris, Harris, Mo.....	20 00
Second premium, W. S. Van Natta & Son, Fowler, Ind.....	15 00
Third premium, J. C. Adams, Moweaqua, Ill.....	10 00
Fourth premium, Jacob Moore & Son, Bunker Hill, Ind.....	8 00
Fifth premium, W. S. Van Natta & Son, Fowler, Ind.....	7 00
Junior yearling heifer, O. Harris, Harris, Mo.....	20 00
Second premium, Clem Graves, Bunker Hill, Ind.....	15 00
Third premium, H. E. Watson, Edinburg, Ind.....	10 00
Fourth premium, C. A. Jamison, Peoria, Ill.....	8 00
Fifth premium, J. C. Adams, Moweaqua, Ill.....	7 00
Calf under one year old, O. Harris, Harris, Mo.....	20 00
Second premium, J. C. Adams, Moweaqua, Ill.....	15 00
Third premium, W. S. Van Natta & Son, Fowler, Ind.....	10 00
Fourth premium, O. Harris, Harris, Mo.....	8 00
Fifth premium, O. Harris, Harris, Mo.....	7 00

STEER CLASSES.

Pure Bred Hereford Steer, Spayed or Martin Heifer.

Two years old and under three, Geo. P. Henry, Goodenow, Ill....	15 00
One year old and under two, Geo. P. Henry, Goodenow, Ill.....	15 00
Calf under one year old, S. J. Peabody, Columbia City, Ind.....	15 00
Second premium, Geo. P. Henry, Goodenow, Ill.....	10 00
Herd, Geo. P. Henry, Goodenow, Ill.....	20 00

(Grade Hereford Steers or Spayed Martin Heifer sired by a pure bred, registered Hereford Bull.)

Two years old and under three, Geo. P. Henry, Goodenow, Ill....	15 00
Second premium, F. A. Nave, Attica, Ind.....	10 00
Third premium, F. A. Nave, Attica, Ind.....	5 00
One year old and under two, F. A. Nave, Attica, Ind.....	15 00
Second premium, F. A. Nave, Attica, Ind.....	10 00
Third premium, Clem Graves, Bunker Hill, Ind.....	5 00
Steer calf under one year old, Geo. P. Henry, Goodenow, Ill.....	15 00
Second premium, F. A. Nave, Attica, Ind.....	10 00
Third premium, F. A. Nave, Attica, Ind.....	5 00
Herd, F. A. Nave, Attica, Ind.....	20 00
Second premium, F. A. Nave, Attica, Ind.....	10 00

CLASS XIX—Polled Durhams.

(Omer C. Bigler, Judge, Hartwick, Iowa.)

BULLS.

Three years old and over, J. N. Woods & Sons, Gardner, Ill.....	\$20 00
Second premium, Wm. Tossey, Marysville, Ohio.....	12 00
Third premium, J. H. Jennings, Kangley, Ill.....	8 00
Bull two years old and under three, Fletcher S. Hines, Malott Park, Ind.....	20 00
Second premium, A. C. Wood & Son, Pendleton, Ind.....	12 00
Third premium, J. N. Woods & Sons, Gardner, Ill.....	8 00
One year old and under two, Fletcher S. Hines, Malott Park, Ind.	20 00
Second premium, Oscar Hadley, Plainfield, Ind.....	12 00
Third premium, Wm. Tossey, Marysville, Ohio.....	8 00
Calf under one year old, Fletcher S. Hines, Malott Park, Ind.....	20 00
Second premium, J. N. Woods & Sons, Gardner, Ill.....	12 00
Third premium, Wm. Tossey, Marysville, Ohio.....	8 00

COWS AND HEIFERS.

Three years old and over, J. N. Woods & Sons, Gardner, Ill.....	20 00
Second premium, J. H. Jennings, Kangley, Ill.....	12 00
Third premium, A. C. Wood & Son, Pendleton, Ind.....	8 00
Two years old and under three, Fletcher S. Hines, Malott Park, Ind.....	20 00
Second premium, J. H. Jennings, Kangley, Ill.....	12 00
Third premium, J. H. Jennings, Kangley, Ill.....	8 00
One year old and under two, J. H. Jennings, Kangley, Ill.....	20 00
Second premium, Fletcher S. Hines, Malott Park, Ind.....	12 00
Third premium, Fletcher S. Hines, Malott Park, Ind.....	8 00
Calf under one year, J. N. Woods & Sons, Gardner, Ill.....	20 00

Second premium, Fletcher S. Hines, Malott Park, Ind.....	12 00
Third premium, J. H. Jennings, Kangley, Ill.....	8 00
Exhibitor's herd, Fletcher S. Hines, Malott Park, Ind.....	20 00
Second premium, J. H. Jennings, Kangley, Ill.....	12 00
Third premium, J. N. Woods & Sons, Gardner, Ill.....	8 00
Breeder's herd, Wm. Tossey, Marysville, Ohio.....	20 00

CLASS XX—Aberdeen-Angus.

BULLS.

Three years old and over, D. Bradfute & Son, Cedarville, Ohio...	\$15 00
Second premium, E. Reynolds & Son, Prophetstown, Ill.....	10 00
Third premium, P. S. Maxwell, Sycamore, Ind.....	5 00
Two years old and under three, M. A. Judy & Son, Williamsport, Ind.....	10 00
Second premium, Roy Hagler, Ohio.....	7 00
Third premium, E. Reynolds & Son, Prophetstown, Ill.....	4 00
One year old and under two, C. H. Gardner, Blandinsville, Ill....	8 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	6 00
Third premium, C. E. Swain & Sons, Pendleton, Ind.....	3 00
Calf under one year old, C. H. Gardner, Blandinsville, Ill.....	5 00
Second premium, E. Reynolds & Son, Prophetstown, Ill.....	3 00
Third premium, P. S. Maxwell, Sycamore, Ind.....	2 00

COWS AND HEIFERS.

Three years old and over, C. H. Gardner, Blandinsville, Ill.....	15 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	10 00
Third premium, M. A. Judy & Son, Williamsport, Ind.....	5 00
Two years old and under three, C. H. Gardner, Blandinsville, Ill..	10 00
Second premium, M. A. Judy & Son, Williamsport, Ind.....	7 00
Third premium, D. Bradfute & Son, Cedarville, Ohio.....	4 00
One year old and under two, C. H. Gardner, Blandinsville, Ill....	8 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	6 00
Third premium, M. A. Judy & Son, Williamsport, Ind.....	3 00
Calf under one year old, E. Reynolds & Son, Prophetstown, Ill...	5 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	3 00
Third premium, M. A. Judy & Son, Williamsport, Ind.....	2 00
Four animals, either sex, the get of one sire, C. H. Gardner, Blandinsville, Ill.	10 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	7 00
Third premium, M. A. Judy & Son, Williamsport, Ind.....	5 00
Two animals, either sex, the produce of one cow, C. H. Gardner, Blandinsville, Ill.....	10 00
Second premium, M. A. Judy & Son, Williamsport, Ind.....	7 00

Third premium, E. Reynolds & Son, Prophetstown, Ill.....	5 00
Exhibitor's herd, D. Bradfute & Son, Cedarville, Ohio.....	20 00
Second premium, M. A. Judy & Son, Williamsport, Ind.....	10 00
Breeder's herd, C. H. Gardner, Blandinsville, Ill.....	20 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	10 00

SWEEPSTAKES.

Best bull, any age, M. A. Judy & Son, Williamsport, Ind.....	20 00
Best cow or heifer, any age, C. H. Gardner, Blandinsville, Ill....	20 00

American Aberdeen-Angus Breeders' Association Special Premiums.

BULLS.

One year old and under two, C. H. Gardner, Blandinsville, Ill....	14 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	8 00
Third premium, C. E. Swain & Son, Pendleton, Ind.....	6 00
Fourth premium, M. A. Judy & Son, Williamsport, Ind.....	4 00
Fifth premium, D. R. Perry, Columbus, Ind.....	3 00
Sixth premium, Henderson & Sons, Lebanon, Ind.....	2 00

COWS AND HEIFERS.

Three years old or over, E. Reynolds & Son, Prophetstown, Ill....	14 00
Second premium, D. Bradfute & Son, Cedarville, Ohio.....	9 00
Third premium, Henderson & Sons, Lebanon, Ind.....	6 00
Two years old and under three, E. Reynolds & Son, Prophetstown, Ill.....	14 00
Second premium, Roy Hagler, Hagler, Ohio.....	9 00
Third premium, D. Bradfute & Son, Cedarville, Ohio.....	6 00
One year old and under two, C. H. Gardner, Blandinsville, Ill....	14 00
Second premium, E. Reynolds & Son, Prophetstown, Ill.....	8 00
Third premium, Henderson & Sons, Lebanon, Ind.....	6 00
Under one year old, C. H. Gardner, Blandinsville, Ill.....	14 00
Second premium, C. H. Gardner, Blandinsville, Ill.....	8 00
Third premium, D. Bradfute & Son, Cedarville, Ohio.....	6 00

CLASS XXI—Specials for Indiana Aberdeen-Angus Breeders.

BULLS.

One year old and under two, M. A. Judy & Son, Williamsport, Ind. \$15 00	
Second premium, C. E. Swain & Sons, Pendleton, Ind.....	13 00
Third premium, Henderson & Sons, Lebanon, Ind.....	11 00
Fourth premium, D. R. Perry, Columbus, Ind.....	9 00
Fifth premium, Crawford Coal Co., Brazil, Ind.....	7 00
Six months old and under twelve, C. E. Swain & Sons, Pendleton, Ind.....	15 00

Second premium, P. S. Maxwell, Sycamore, Ind.....	13 00
Third premium, Crawford Coal Co., Brazil, Ind.....	11 00
Fourth premium, P. S. Maxwell, Sycamore, Ind.....	9 00
Six months old, Henderson & Sons, Lebanon, Ind.....	15 00

COWS AND HEIFERS.

One year old and under two, M. A. Judy & Son, Williamsport, Ind.	15 00
Second premium, M. A. Judy & Son, Williamsport, Ind.....	13 00
Third premium, Henderson & Sons, Lebanon, Ind.....	11 00
Fourth premium, C. E. Swain & Sons, Pendleton, Ind.....	9 00
Fifth premium, C. E. Swain & Sons, Pendleton, Ind.....	7 00
Six months old and under twelve, M. A. Judy & Son, Williams- port, Ind.....	15 00
Second premium, M. A. Judy & Son, Williamsport, Ind.....	13 00
Third premium, Henderson & Sons, Lebanon, Ind.....	11 00
Fourth premium, Henderson & Sons, Lebanon, Ind.....	9 00
Fifth premium, P. S. Maxwell, Sycamore, Ind.....	7 00
Young herd, M. A. Judy & Son, Williamsport, Ind.....	40 00
Second premium, Henderson & Sons, Lebanon, Ind.....	20 00

CLASS XXII—Galloways.

BULLS.

Three years old and over, C. N. Moody, Atlanta, Mo.....	\$15 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind.....	10 00
Third premium, Brookside Farm Co., Ft. Wayne, Ind.....	5 00
One year old and under two, Brookside Farm Co., Ft. Wayne, Ind	8 00
Second premium, C. N. Moody, Atlanta, Mo.....	6 00
Calf under one year old, Brookside Farm Co., Ft. Wayne, Ind....	5 00
Second premium, C. N. Moody, Atlanta, Mo.....	3 00
Third premium, Brookside Farm Co., Ft. Wayne, Ind.....	2 00

COWS AND HEIFERS.

Three years old and over, Brookside Farm Co., Ft. Wayne, Ind....	\$15 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind.....	10 00
Third premium, C. N. Moody, Atlanta, Mo.....	5 00
Two years old and under three, C. N. Moody, Atlanta, Mo.....	10 00
Second premium, C. N. Moody, Atlanta, Mo.....	7 00
Third premium, Brookside Farm Co., Ft. Wayne, Ind.....	4 00
One year old and under two, C. N. Moody, Atlanta, Mo.....	8 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind.....	6 00
Third premium, C. N. Moody, Atlanta, Mo.....	3 00
Calf under one year old, Brookside Farm Co., Ft. Wayne, Ind....	5 00

Second premium, C. N. Moody, Atlanta, Mo.....	3 00
Third premium, Brookside Farm Co., Ft. Wayne, Ind.....	2 00
Four animals, either sex, the get of one sire, Brookside Farm Co., Ft. Wayne, Ind.....	10 00
Second premium, C. N. Moody, Atlanta, Mo.....	7 00
Two animals, either sex, the produce of one cow, C. N. Moody, At- lanta, Mo.	10 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind.....	7 00
Third premium, Brookside Farm Co., Ft. Wayne, Ind.....	4 00
Exhibitor's herd, C. N. Moody, Atlanta, Mo.....	20 00
Second premium, Brookside Farm Co., Ft. Wayne, Ind.....	10 00
Breeder's herd, Brookside Farm Co., Ft. Wayne, Ind.....	20 00
Second premium, C. N. Moody, Atlanta, Mo.....	10 00

CLASS XXIII—Red Polls.

(Omer Bigler, Judge, Hartwick, Iowa.)

BULLS.

Two years old and over, J. J. Chambers, Sadorus, Ill.....	\$10 00
Second premium	
Two years old and under three, Chas. J. Buchanan, Indianapolis..	7 00
One year old and under two, J. J. Chambers, Sadorus, Ill.....	5 00
Calf under one year old, J. J. Chambers, Sadorus, Ill.....	5 00
Second premium, Chas. J. Buchanan, Indianapolis	3 00

COWS AND HEIFERS.

Three years old and over, J. J. Chambers, Sadorus, Ill.....	10 00
Second premium, Chas. J. Buchanan, Indianapolis.....	5 00
Two years old and under three, J. J. Chambers, Sadorus, Ill.....	7 00
Second premium, Chas. J. Buchanan, Indianapolis.....	4 00
One year old and under two, J. J. Chambers, Sadorus, Ill.....	5 00
Second premium, J. J. Chambers, Sadorus, Ill.....	3 00
Calf under one year old, J. J. Chambers, Sadorus, Ill.....	5 00
Second premium, Chas. J. Buchanan, Indianapolis.....	3 00
Four animals, either sex, the get of one sire, J. J. Chambers, Sa- dorus, Ill.	8 00
Second premium, J. J. Chambers, Sadorus, Ill.....	4 00
Two animals, either sex, the produce of one cow, J. J. Chambers, Sadorus, Ill.	8 00
Second premium, J. J. Chambers, Sadorus, Ill.....	4 00
Exhibitor's herd, J. J. Chambers, Sadorus, Ill.....	10 00
Second premium, Chas. J. Buchanan, Indianapolis.....	5 00
Breeder's herd, J. J. Chambers, Sadorus, Ill.....	10 00

SWEEPSTAKES.

Best bull, any age, J. J. Chambers, Sadorus, Ill.....	10 00
Best cow or heifer, any age, J. J. Chambers, Sadorus, Ill.....	10 00

CLASS XXIV—Grand Sweepstakes. Open to all Beef Breeds.

(Omer Bigler, Hartwick, Pa., S. O'Donnell and J. J. Imboden, Judges.)

Best bull, any age or breed, G. M. Casey, Clinton, Mo.....	\$50 00
Best cow or heifer, any age or breed, G. M. Casey, Clinton, Mo....	50 00

CATTLE. (DAIRY BREEDS.)

CLASS XXV—Jerseys.

(John V. Decker, Judge, Columbus, Ohio.)

BULLS.

Three years old and over, J. E. Robbins, Greensburg, Ind.....	\$20 00
Second premium, P. A. Pugh & Sons, New Cumberland, W. Va...	12 00
Third premium, J. E. Robbins, Greensburg, Ind.....	6 00
Two years old and under three, J. E. Robbins, Greensburg, Ind...	15 00
Second premium, P. A. Pugh & Sons, New Cumberland, W. Va....	10 00
Third premium, Rolla Oliver, Dearborn, Mo.....	5 00
One year old and under two, P. A. Pugh & Sons, New Cumberland, W. Va.	10 00
Second premium, J. E. Robbins, Greensburg, Ind.....	7 00
Third premium, Rolla Oliver, Dearborn, Mo.....	4 00
Calf under one year old, J. E. Robbins, Greensburg, Ind.....	7 00
Second premium, J. E. Robbins, Greensburg, Ind.....	5 00
Third premium, Rolla Oliver, Dearborn, Mo.....	3 00

COWS AND HEIFERS.

Three years old and over, J. E. Robbins, Greensburg, Ind.....	20 00
Second premium, Rolla Oliver, Dearborn, Mo.....	12 00
Third premium, Rolla Oliver, Dearborn, Mo.....	6 00
Two years old and under three, J. E. Robbins, Greensburg, Ind...	15 00
Second premium, Rolla Oliver, Dearborn, Mo.....	10 00
Third premium, P. A. Pugh & Sons, New Cumberland, W. Va....	5 00
One year old and under two, J. E. Robbins, Greensburg, Ind.....	10 00

Second premium, Rolla Oliver, Dearborn, Mo.....	7 00
Third premium, P. A. Pugh & Sons, New Cumberland, W. Va....	4 00
Calf under one year old, J. E. Robbins, Greensburg, Ind.....	7 00
Second premium, P. A. Pugh & Sons, New Cumberland, W. Va....	5 00
Third premium, Rolla Oliver, Dearborn, Mo.....	3 00
Four animals, either sex, the get of one sire, Rolla Oliver, Dearborn, Mo.	15 00
Second premium, J. E. Robbins, Greensburg, Ind.....	10 00
Third premium, P. A. Pugh & Sons, New Cumberland, W. Va....	6 00
Two animals, either sex, the produce of one cow, Rolla Oliver, Dearborn, Mo.	15 00
Second premium, J. E. Robbins, Greensburg, Ind.....	10 00
Third premium, Rolla Oliver, Dearborn, Mo.....	5 00
Exhibitor's herd, J. E. Robbins, Greensburg, Ind.....	25 00
Second premium, Rolla Oliver, Dearborn, Mo.....	15 00
Breeder's herd, J. E. Robbins, Greensburg, Ind.....	25 00
Second premium, P. A. Pugh & Sons, New Cumberland, W. Va....	15 00

SWEEPSTAKES.

Best bull, any age, J. E. Robbins, Greensburg, Ind.....	25 00
Best cow or heifer, any age, J. E. Robbins, Greensburg, Ind.....	25 00

CLASS XXVI—Holstein-Friesian.

(John W. Decker, Judge, Columbus, Ohio.)

BULLS.

Three years old and over, T. A. Mitchell, Weedsport, N. Y.....	\$12 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	8 00
Two years old and under three, T. A. Mitchell, Weedsport, N. Y..	8 00
One year old and under two, T. A. Mitchell, Weedsport, N. Y.....	6 00
Calf under one year old, T. A. Mitchell, Weedsport, N. Y.....	5 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	3 00

COWS AND HEIFERS.

Three years old and over, T. A. Mitchell, Weedsport, N. Y.....	12 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	8 00
Third premium, T. A. Mitchell, Weedsport, N. Y.....	4 00
Two years old and under three, T. A. Mitchell, Weedsport, N. Y..	8 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	6 00
One year old and under two, T. A. Mitchell, Weedsport, N. Y.....	6 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	3 00
Third premium, T. A. Mitchell, Weedsport, N. Y.....	2 00
Calf under one year old, T. A. Mitchell, Weedsport, N. Y.....	5 00

Second premium, T. A. Mitchell, Weedsport, N. Y.....	3 00
Four animals, either sex, the get of one sire, T. A. Mitchell, Weedsport, N. Y.....	8 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	6 00
Two animals, either sex, the produce of one cow, T. A. Mitchell, Weedsport, N. Y.....	8 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	6 00
Third premium, T. A. Mitchell, Weedsport, N. Y.....	3 00
Exhibitor's herd, T. A. Mitchell, Weedsport, N. Y.....	15 00
Second premium, T. A. Mitchell, Weedsport, N. Y.....	10 00
Breeder's herd, T. A. Mitchell, Weedsport, N. Y.....	15 00

SWEEPSTAKES.

Best bull, any age, T. A. Mitchell, Weedsport, N. Y.....	20 00
Best cow or heifer, any age, T. A. Mitchell, Weedsport, N. Y.....	20 00

CLASS XXVII—Dutch Belted.

(John W. Decker, Judge, Columbus, Ohio.)

BULLS.

Three years old and over, F. R. Sanders, Laconia, Ind.....	\$12 00
Two years old and under three, F. R. Sanders, Laconia, Ind.....	8 00
Second premium, J. W. Swab, Findlay, Ohio.....	6 00
One year old and under two, J. W. Swab, Findlay, Ohio.....	6 00
Second premium, F. R. Sanders, Laconia, Ind.....	3 00
Calf under one year old, F. R. Sanders, Laconia, Ind.....	5 00
Second premium, J. W. Swab, Laconia, Ind.....	3 00
Third premium, F. R. Sanders, Laconia, Ind.....	2 00

COWS AND HEIFERS.

Three years old and over, F. R. Sanders, Laconia, Ind.....	12 00
Second premium, J. W. Swab, Findlay, Ohio.....	8 00
Third premium, J. W. Swab, Findlay, Ohio.....	4 00
Two years old and under three, F. R. Sanders, Laconia, Ind.....	8 00
Second premium, J. W. Swab, Findlay, Ohio.....	6 00
Third premium, J. W. Swab, Findlay, Ohio.....	3 00
One year old and under two, F. R. Sanders, Laconia, Ind.....	6 00
Second premium, F. R. Sanders, Laconia, Ind.....	3 00
Third premium, J. W. Swab, Findlay, Ohio.....	2 00
Calf under one year old, F. R. Sanders, Laconia, Ind.....	5 00
Second premium, F. R. Sanders, Laconia, Ind.....	3 00
Third premium, J. W. Swab, Findlay, Ohio.....	2 00

Four animals, either sex, the get of one sire, F. R. Sanders, Laconia, Ind.	8 00
Second premium, J. W. Swab, Findlay, Ohio.....	6 00
Third premium, F. R. Sanders, Laconia, Ind.....	3 00
Two animals, either sex, the produce of one cow, F. R. Sanders, Laconia, Ind.	8 00
Second premium, J. W. Swab, Findlay, Ohio.....	6 00
Third premium, F. R. Sanders, Laconia, Ind.....	3 00
Exhibitor's herd, F. R. Sanders, Laconia, Ind.....	15 00
Second premium, J. W. Swab, Findlay, Ohio.....	
Breeder's herd, F. R. Sanders, Laconia, Ind.....	15 00
Second premium, J. W. Swab, Findlay, Ohio.....	10 00

CLASS XXVIII—Ayrshires.

(John W. Decker, Judge, Columbus, Ohio.)

BULLS.

Three years old and over, Howard Cook, Beloit, Wis.....	\$12 00
Two years old and under three, McCormick & Edgerly, Pataskala, Ohio	8 00
One year old and under two, Howard Cook, Beloit, Wis.....	6 00
Calf under one year old, Howard Cook, Beloit, Wis.....	5 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	3 00
Third premium, Howard Cook, Beloit, Wis.....	2 00

COWS AND HEIFERS.

Three years old and over, McCormick & Edgerly, Pataskala, Ohio	12 00
Second premium, Howard Cook, Beloit, Wis.....	8 00
Two years old and under three, McCormick & Edgerly, Pataskala, Ohio	8 00
Second premium, Howard Cook, Beloit, Wis.....	6 00
Third premium, Howard Cook, Beloit, Wis.....	3 00
One year old and under two, McCormick & Edgerly, Pataskala, Ohio	6 00
Second premium, Howard Cook, Beloit, Wis.....	3 00
Third premium, Howard Cook, Beloit, Wis.....	2 00
Calf under one year old, McCormick & Edgerly, Pataskala, Ohio..	5 00
Second premium, Howard Cook, Beloit, Wis.....	3 00
Third premium, Howard Cook, Beloit, Wis.....	2 00
Four animals, either sex, the get of one sire, McCormick & Edgerly, Pataskala, Ohio	8 00
Second premium, Howard Cook, Beloit, Wis.....	6 00

Two animals, either sex, the produce of one cow, Howard Cook, Beloit, Wis.	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	6 00
Third premium, Howard Cook, Beloit, Wis.....	3 00
Exhibitor's herd, McCormick & Edgerly, Pataskala, Ohio.....	15 00
Second premium, Howard Cook, Beloit, Wis.....	10 00
Breeder's herd, McCormick & Edgerly, Pataskala, Ohio.....	15 00
Second premium, Howard Cook, Beloit, Wis.....	10 00

CLASS XXIX—Guernseys.

(John W. Decker, Judge, Columbus, Ohio.)

BULLS.

Three years old and over, L. V. Axtell, Perry, Ohio.....	\$12 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	8 00
Third premium, L. V. Axtell, Perry, Ohio.....	4 00
Two years old and under three, L. V. Axtell, Perry, Ohio.....	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	6 00
One year old and under two, L. V. Axtell, Perry, Ohio.....	6 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	3 00
Calf under one year old, L. V. Axtell, Perry, Ohio.....	5 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	3 00
Third premium, L. V. Axtell, Perry, Ohio.....	2 00

COWS AND HEIFERS.

Three years old and over, L. V. Axtell, Perry, Ohio.....	12 00
Second premium, L. V. Axtell, Perry, Ohio.....	8 00
Third premium, L. V. Axtell, Perry, Ohio.....	4 00
Two years old and under three, L. V. Axtell, Perry, Ohio.....	8 00
Second premium, L. V. Axtell, Perry, Ohio.....	6 00
Third premium, McCormick & Edgerly, Pataskala, Ohio.....	3 00
One year old and under two, L. V. Axtell, Perry, Ohio.....	6 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	3 00
Third premium, L. V. Axtell, Perry, Ohio.....	2 00
Calf under one year old, L. V. Axtell, Perry, Ohio.....	5 00
Second premium, L. V. Axtell, Perry, Ohio.....	3 00
Third premium, McCormick & Edgerly, Pataskala, Ohio.....	2 00
Four animals, either sex, the get of one sire, L. V. Axtell, Perry, Ohio	8 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	6 00
Two animals, either sex, the produce of one cow, L. V. Axtell, Perry, Ohio	8 00

Second premium, McCormick & Edgerly, Pataskala, Ohio.....	6 00
Third premium, L. V. Axtell, Perry, Ohio.....	3 00
Exhibitor's herd, L. V. Axtell, Perry, Ohio.....	15 00
Second premium, L. V. Axtell, Perry, Ohio.....	10 00
Breeder's herd, L. V. Axtell, Perry, Ohio.....	15 00
Second premium, McCormick & Edgerly, Pataskala, Ohio.....	10 00

SWEEPSTAKES.

Best bull, any age, L. V. Axtell, Perry, Ohio.....	20 00
Best cow or helper, any age, L. V. Axtell, Perry, Ohio.....	20 00

CLASS XXX—Dairy and Creamery Products.

(John W. Decker, Judge, Columbus, Ohio.)

For 30-pound tub creamery butter, Herbert Newby, Spiceland, Ind.	\$20 00
Second premium, John Enger, Oscola, Ind.....	15 00
Third premium, Perry L. Johnson, Prairie Creek, Ind.....	10 00
Fourth premium, Schlosser Bros., Plymouth, Ind.....	5 00
For 20-pound tub dairy butter, W. G. Bradford, Marion, Ind.....	12 00
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind.....	8 00
For five pounds dairy butter in one-pound prints, Chas. Lamont, Joppa, Ind.	8 00
Second premium, Mrs. E. J. Shaw, Plainfield, Ind.....	6 00
Third premium, Alda M. Newsom, Valley Mills, Ind.....	4 00
Fourth premium, W. G. Bradford, Marion, Ind.....	2 00
For full cream cheese, not less than 30 pounds, A. E. Helmer, Evans Mills, N. Y.....	20 00
Second premium, Triumph Dairy Co., Triumph, Ohio.....	15 00
Third premium, Boyd & Drischel, Cambridge City, Ind.....	10 00
For cottage cheese, not less than one print, exhibited in standard jelly glasses, Mrs. W. B. Flick, Lawrence, Ind.....	3 00
Second premium, Jennie H. Droke, Gallaudet, Ind.....	2 00
Third premium, Mrs. Jerome Dunlap, Lafayette, Ind.....	1 00
For most fancy exhibit of print or ornamental butter work, Jennie H. Droke, Gallaudet, Ind.....	10 00
For three Young American cheese, not less than two pounds each, A. E. Helmer, Evans Mills, N. Y.....	15 00
Second premium, Boyd & Drischel, Cambridge City, Ind.....	10 00

SHEEP.

CLASS XXXI—Sheep. Shropshire.

(H. N. Gibson, Judge, Delaware, Ontario.)

RAMS.

Two years old and over, G. Howard Davison, Millbrook, N. Y....	\$12 00
Second premium, John Milton, Marshall, Mich.....	8 00
Third premium, Geo. Allen, Allerton, Ill.....	6 00
Fourth premium, Folly Farm, Abington, Pa.....	5 00
Fifth premium, J. Y. Storm & Sons, Lebanon, Ind.....	3 00
One year old and under two, Geo. Allen, Allerton, Ill.....	12 00
Second premium, G. Howard Davison, Millbrook, N. Y.....	8 00
Third premium, Morgan Farm, Beloit, Wis.....	6 00
Fourth premium, Geo. Allen, Allerton, Ill.....	5 00
Fifth premium, Folly Farm, Abington, Pa.....	3 00
Lamb, Geo. Allen, Allerton, Ill.....	12 00
Second premium, G. Howard Davison, Millbrook, N. Y.....	8 00
Third premium, G. Howard Davison, Millbrook, N. Y.....	6 00
Fourth premium, L. D. Rumsey, Lewiston, N. Y.....	5 00
Fifth premium, Geo. Allen, Allerton, Ill.....	3 00
Best pen five rams, any age, Folly Farm, Abington, Pa.....	12 00
Second premium, G. Howard Davison, Millbrook, N. Y.....	8 00
Third premium, Morgan Farm, Beloit, Wis.....	6 00
Fourth premium, Geo. Allen, Allerton, Ill.....	5 00

EWES.

Two years old or over, Morgan Farm, Beloit, Wis.....	12 00
Second premium, Geo. Allen, Allerton, Ill.....	8 00
Third premium, G. Howard Davison, Millbrook, N. Y.....	6 00
Fourth premium, L. D. Rumsey, Lewiston, N. Y.....	5 00
Fifth premium, Geo. Allen, Allerton, Ill.....	3 00
One year old and under two, G. Howard Davison, Millbrook, N. Y.	12 00
Second premium, Geo. Allen, Allerton, Ill.....	8 00
Third premium, L. D. Rumsey, Lewiston, N. Y.....	6 00
Fourth premium, G. Howard Davison, Millbrook, N. Y.....	5 00
Fifth premium, Morgan Farm, Beloit, Wis.....	3 00
Lamb, Geo. Allen, Allerton, Ill.....	12 00
Second premium, John Milton, Marshall, Mich.....	8 00
Third premium, G. Howard Davison, Millbrook, N. Y.....	6 00
Fourth premium, L. D. Rumsey, Lewiston, N. Y.....	5 00
Fifth premium, Morgan Farm, Beloit, Wis.....	3 00

FLOCKS.

Exhibitor's flock, Geo. Allen, Allerton, Ill.....	12 00
Second premium, G. Howard Davison, Millbrook, N. Y.....	8 00
Third premium, Morgan Farm, Beloit, Wis.....	6 00
Fourth premium, L. D. Rumsey, Lewiston, N. Y.....	5 00
Breeder's flock, Geo. Allen, Allerton, Ill.....	12 00
Second premium, L. D. Rumsey, Lewiston, N. Y.....	8 00
Third premium, Folly Farm, Abington, Pa.....	6 00
Fourth premium, Chas. H. Hutchinson, White Pigeon, Mich.....	5 00

CHAMPIONS.

Champion ram, any age, G. Howard Davison, Millbrook, N. Y.....	12 00
Champion ewe, any age, G. Howard Davison, Millbrook, N. Y.....	12 00

CLASS XXXII—Oxford Down.

(H. Noel Gibson, Judge, Delaware, Ontario.)

RAMS.

Two years old or over, Geo. McKerrow & Sons, Sussex, Wis.....	\$10 00
Second premium, R. J. Stone, Stonington, Ill.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, R. J. Stone, Stonington, Ill.....	3 00
One year old and under two, John Andregg & Son, Basil, Ohio....	10 00
Second premium, R. J. Stone, Stonington, Ill.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, John Milton, Marshall, Mich.....	3 00
Lamb, R. J. Stone, Stonington, Ill.....	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, John Andregg & Son, Basil, Ohio.....	3 00

EWES.

Two years old or over, Geo. McKerrow & Sons, Sussex, Wis.....	10 00
Second premium, R. J. Stone, Stonington, Ill.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, R. J. Stone, Stonington, Ill.....	3 00
One year old and under two, Geo. McKerrow & Sons, Sussex, Wis.	10 00
Second premium, John Milton, Marshall, Mich.....	6 00
Third premium, R. J. Stone, Stonington, Ill.....	4 00
Fourth premium, John Andregg & Son, Basil, Ohio.....	3 00
Lamb, Geo. McKerrow & Sons, Sussex, Wis.....	10 00
Second premium, R. J. Stone, Stonington, Ill.....	6 00
Third premium, John Andregg & Son Basil, Ohio.....	4 00

FLOCKS.

Exhibitor's flock, Geo. McKerrow & Sons, Sussex, Wis.....	10 00
Second premium, R. J. Stone, Stonington, Ill.....	6 00
Third premium, John Andregg & Son, Basil, Ohio.....	4 00
Breeder's flock, Wilson Bros., Muncie, Ind.....	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, R. J. Stone, Stonington, Ill.....	4 00

CHAMPIONS.

Champion ram, any age, Geo. McKerrow & Sons, Sussex, Wis....	10 00
Champion ewe, any age, Geo. McKerrow & Sons, Sussex, Wis....	10 00

American Oxford Down Record Association Special Premiums.

(H. Noel Gibson, Judge, Delaware, Ontario.)

Best yearling ram, Wilson Bros., Muncie, Ind.....	6 00
Best yearling ewe, Wilson Bros., Muncie, Ind.....	6 00
Best pen of four lambs, either sex, Wilson Bros., Muncie, Ind....	6 00

CLASS XXXIII—Southdown.

(Uriah Privett, Greensburg, and H. Noel Gibson, Delaware, Ont., Judges.)

RAMS.

Two years old or over, Geo. McKerrow & Sons, Sussex, Wis.....	\$10 00
Second premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	6 00
Third premium, Cole Bros., Spring Grove, Ill.....	4 00
Fourth premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	3 00
One year old and under two, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Geo. Allen, Allerton, Ill.....	4 00
Fourth premium, Geo. McKerrow & Sons, Sussex, Wis.....	3 00
Lamb, Geo. Allen, Allerton, Ill.....	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	4 00
Fourth premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	3 00

EWES.

Two years old or over, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Geo. Allen, Allerton, Ill.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00
One year old and under two, Geo. Allen, Allerton, Ill.....	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	3 00
Lamb, Geo. Allen, Allerton, Ill.....	10 00
Second premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Fourth premium, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	3 00

FLOCKS.

Exhibitor's flock, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	\$10 00
Second premium, Geo. Allen, Allerton, Ill.....	6 00
Third premium, Geo. McKerrow & Sons, Sussex, Wis.....	4 00
Breeder's flock, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	10 00
Second premium, Geo. McKerrow & Sons, Sussex, Wis.....	6 00
Third premium, Wilson Bros., Muncie, Ind.....	4 00

CHAMPIONS.

Champion ram, any age, Geo. A. Drummond, Beaconsfield, Pt. Claire, Canada	10 00
Champion ewe, any age, Geo. Allen, Allerton, Ill.....	10 00

CLASS XXXIV—Hampshire Down.

(Uriah Privett, Judge, Greensburg, Ind.)

RAMS.

Two years old or over, John Milton, Marshall, Mich.....	\$8 00
One year old and under two, John Milton, Marshall, Mich.....	5 00
Second premium, John Milton, Marshall, Mich.....	3 00
Third premium, John Milton, Marshall, Mich.....	2 00
Lamb, John Milton, Marshall, Mich.....	5 00
Second premium, John Milton, Marshall, Mich.....	3 00

EWES.

Two years old or over, John Milton, Marshall, Mich.....	8 00
Second premium, John Milton, Marshall, Mich.....	4 00
One year old and under two, John Milton, Marshall, Mich.....	5 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	3 00
Third premium, John Milton, Marshall, Mich.....	3 00
Lamb, John Milton, Marshall, Mich.....	5 00
Second premium, John Milton, Marshall, Mich.....	3 00
Third premium, John Milton, Marshall, Mich.....	2 00

FLOCKS.

Exhibitor's flock, John Milton, Marshall, Mich.....	5 00
Second premium, John Milton, Marshall, Mich.....	3 00
Breeder's flock, John Milton, Marshall, Mich.....	5 00

CHAMPIONS.

Champion ram, any age, John Milton, Marshall, Mich.....	5 00
Champion ewe, any age, John Milton, Marshall, Mich.....	5 00

CLASS XXXV—Cotswold.

(H. Noel Gibson, Judge, Delaware, Ontario.)

RAMS.

Two years old or over, Geo. Harding & Son, Waukesha, Wis.....	\$10 00
Second premium, John Milton, Marshall, Mich.....	6 00
Third premium, Wilson Bros., Muncie, Ind.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00
One year old and under two, Geo. Harding & Son, Waukesha, Wis.....	10 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	6 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00
Lamb, Geo. Harding & Son, Waukesha, Wis.....	10 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	6 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00

EWES.

Two years old or over, Geo. Harding & Son, Waukesha, Wis....	10 00
Second premium, Wilson Bros., Muncie, Ind.....	6 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00

Fourth premium, Wilson Bros., Muncie, Ind.....	3 00
One year old and under two, Geo. Harding & Son, Waukesha, Wis.	10 00
Second premium, Wilson Bros., Muncie, Ind.....	6 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00
Lamb Geo. Harding & Son, Waukesha, Wis.....	10 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	6 00
Third premium, Wilson Bros., Muncie, Ind.....	4 00
Fourth premium, Wilson Bros., Muncie, Ind.....	3 00

FLOCKS.

Exhibitor's flock, Geo. Harding & Son, Waukesha, Wis.....	10 00
Second premium, Wilson Bros., Muncie, Ind.....	6 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	4 00
Breeder's flock, Wilson Bros., Muncie, Ind.....	10 00
Second premium, Wilson Bros., Muncie, Ind.....	6 00

CHAMPIONS.

Champion ram, any age, Geo. Harding & Son, Waukesha, Wis...	10 00
Champion ewe, any age, Geo. Harding & Son, Waukesha, Wis...	10 00

AMERICAN COTSWOLD RECORD ASSOCIATION.

SPECIAL PREMIUMS.

(H. Noel Gibson, Judge, Delaware, Ontario.)

Best pen of four lambs, either sex, the get of one ram, Wilson Bros., Muncie, Ind.....	10 00
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CLASS XXXVI—Dorsets.

(H. Noel Gibson, Judge, Delaware, Ontario.)

RAMS.

Two years old or over, R. Stuyvesant, Allamuchy, N. J.....	\$8 00
One year old and under two, R. Stuyvesant, Allamuchy, N. J.....	5 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	3 00
Lamb, R. Stuyvesant, Allamuchy, N. J.....	5 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	3 00
Third premium, R. Stuyvesant, Allamuchy, N. J.....	2 00

EWES.

Two years old or over, R. Stuyvesant, Allamuchy, N. J.....	8 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	4 00
Third premium, R. Stuyvesant, Allamuchy, N. J.....	2 00

One year old and under two, R. Stuyvesant, Allamuchy N. J.....	5 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	3 00
Third premium, R. Stuyvesant, Allamuchy, N. J.....	2 00
Lamb, R. Stuyvesant, Allamuchy, N. J.....	5 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	3 00
Third premium, R. Stuyvesant, Allamuchy, N. J.....	2 00

FLOCKS.

Exhibitor's flock, R. Stuyvesant, Allamuchy, N. J.....	5 00
Second premium, R. Stuyvesant, Allamuchy, N. J.....	3 00
Third premium, R. Stuyvesant, Allamuchy, N. J.....	2 00
Breeder's Flock, R. Stuyvesant, Allamuchy, N. J.....	5 00
Second premium.	

CHAMPIONS.

Champion ram, any age, R. Stuyvesant, Allamuchy, N. J.....	5 00
Champion ewe, any age, R. Stuyvesant, Allamuchy, N. J.....	5 00

CLASS XXXVII—Rambouillet.

(U. C. Brouse, Kendallville, Ind., and H. N. Gibson, Delaware, Ont.,
Judges.)

RAMS.

Two years old or over, Geo. Harding & Son, Waukesha, Wis.....	\$8 00
Second premium, Shaw & Bader, Marits, Ohio.....	4 00
Third premium, Shaw & Bader, Marits, Ohio.....	2 00
One year old and under two, Geo. Harding & Son, Waukesha, Wis.	5 00
Second premium, Shaw & Bader, Marits, Ohio.....	3 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00
Lamb, Shaw & Bader, Marits, Ohio.....	5 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	3 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00

EWES.

Two years old or over, Geo. Harding & Son, Waukesha, Wis.....	8 00
Second premium, Shaw & Bader, Marits, Ohio.....	4 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00
One year old and under two, Geo. Harding & Son, Waukesha, Wis.	5 00
Second premium, Shaw & Bader, Marits, Ohio.....	3 00
Third premium, Shaw & Bader, Marits, Ohio.....	2 00
Lamb, Shaw & Bader, Marits, Ohio.....	5 00
Second premium, Shaw & Bader, Marits, Ohio.....	3 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00

FLOCKS.

Exhibitor's flock, Geo. Harding & Son, Waukesha, Wis.....	5 00
Second premium, Shaw & Bader, Marits, Ohio.....	3 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00
Breeder's flock, Shaw & Bader, Marits Ohio.....	5 00
Second premium, Geo. Harding & Son, Waukesha, Wis.....	3 00
Third premium, Geo. Harding & Son, Waukesha, Wis.....	2 00

CHAMPIONS.

Champion ewe, any age, Geo. Harding & Son, Waukesha, Wis....	5 00
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CLASS XXXVIII—Delaine and American Merinos.

(U. C. Brouse, Judge, Kendallville, Ind.)

RAMS.

Two years old or over, Uriah Cook & Son, West Mansfield, Ohio..	\$8 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
Third premium, Uriah Cook & Son, West Mansfield, Ohio.....	3 00
One year old and under two, Uriah Cook & Son, West Mansfield, Ohio.....	8 00
Ram lamb, Uriah Cook & Son, West Mansfield, Ohio.....	5 00

EWES.

Two years old or over, Uriah Cook & Son, West Mansfield, Ohio..	8 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
One year old and under two, Uriah Cook & Son, West Mansfield, Ohio.....	8 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
Lamb, Uriah Cook & Son, West Mansfield, Ohio.....	8 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
Third premium, Uriah Cook & Son, West Mansfield, Ohio.....	3 00

FLOCKS.

Exhibitor's flock, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	3 00
Breeder's flock, Uriah Cook & Son, West Mansfield, Ohio.....	5 00
Second premium, Uriah Cook & Son, West Mansfield, Ohio.....	3 00

CHAMPIONS.

Champion ram, any age, Uriah Cook & Son, West Mansfield, Ohio.	8 00
Champion ewe, any age, Uriah Cook & Son, West Mansfield, Ohio.	8 00

CLASS XXXIX—Cheviot.

(U. C. Brouse, Judge, Kendallville, Ind.)

RAMS.

Two years old or over, F. B. Hartman, Fincastle, Ind.....	\$8 00
One year old and under two.....	5 00
Second premium, F. B. Hartman, Fincastle, Ind.....	3 00
Lamb, F. B. Hartman, Fincastle, Ind.....	5 00
Second premium, F. B. Hartman, Fincastle, Ind.....	3 00

EWES.

Two years old or over, F. B. Hartman, Fincastle, Ind.....	8 00
Second premium, F. B. Hartman, Fincastle, Ind.....	4 00
One year old and under two, F. B. Hartman, Fincastle, Ind.....	5 00
Second premium, F. B. Hartman, Fincastle, Ind.....	3 00
Lamb, F. B. Hartman, Fincastle, Ind.....	5 00
Second premium, F. B. Hartman, Fincastle, Ind.....	3 00

FLOCKS.

Exhibitor's flock, F. B. Hartman, Fincastle, Ind.....	5 00
Breeder's flock, F. B. Hartman, Fincastle, Ind.....	5 00

CHAMPIONS.

Champion ram, any age, F. B. Hartman, Fincastle, Ind.....	5 00
Champion ewe, any age, F. B. Hartman, Fincastle, Ind.....	5 00

CLASS XXXIX $\frac{1}{2}$ —Lincoln.

(H. Noel Gibson, Judge, Delaware, Ontario.)

RAMS.

One year old and under two, Dr. Roberts Stock Food Co., Waukesha, Wis.	\$5 00
Lamb, Dr. Roberts Stock Food Co., Waukesha, Wis.....	5 00

EWES.

Two years old or over, Dr. Roberts Stock Food Co., Waukesha, Wis.....	8 00
One year old and under two, Dr. Roberts Stock Food Co., Waukesha, Wis.	5 00
Second premium, Dr. Roberts Stock Food Co., Waukesha, Wis....	3 00
Lamb, Dr. Roberts Stock Food Co., Waukesha, Wis.....	5 00
Second premium, Dr. Roberts Stock Food Co., Waukesha, Wis....	3 00

CHAMPIONS.

Champion ram, any age, Dr. Roberts Stock Food Co., Waukesha, Wis.....	5 00
Champion ewe, any age, Dr. Roberts Stock Food Co., Waukesha, Wis.....	5 00

SWINE.

CLASS XL—Berkshire.

(John F. Stover, Judge, Crawfordsville, Ind.)

BOARS.

Two years old or over, W. F. Lillard, Lawrenceburg, Ky.....	\$12 00
Second premium, Wm. M. Gray, Crawfordsville, Ind.....	8 00
Third premium, Etzler & Moses, Convoy, Ohio.....	4 00
One year old and under two, Jas. Riley & Son, Thorntown, Ind...	10 00
Second premium, Etzler & Moses, Convoy, Ohio.....	7 00
Third premium, W. H. McQueston, Whiteland, Ind.....	3 00
Six months old and under twelve, J. F. Elliott, Vincennes, Ind....	8 00
Second premium, Jas. Riley & Son, Thorntown, Ind.....	5 00
Third premium, Geo. W. Jessup, Rockville, Ind.....	2 00
Under six months, I. N. Barker & Son, Thorntown, Ind.....	8 00
Second premium, W. F. Lillard, Lawrenceburg, Ky.....	5 00
Third premium, I. N. Barker & Son, Thorntown, Ind.....	2 00

SOWS.

Two years old or over, Etzler & Moses, Convoy, Ohio.....	12 00
Second premium, Etzler & Moses, Convoy, Ohio.....	8 00
One year old and under two, Etzler & Moses, Convoy, Ohio.....	10 00
Second premium, Wm. M. Gray, Crawfordsville, Ind.....	7 00
Third premium, Wm. M. Gray, Crawfordsville, Ind.....	3 00
Six months old and under twelve, W. F. Lillard, Lawrenceburg, Ky.....	8 00
Third premium, Geo. W. Jessup, Rockville, Ind.....	2 00
Under six months, Jas. Riley & Son, Thorntown, Ind.....	8 00
Second premium, I. N. Barker & Son, Thorntown, Ind.....	5 00
Third premium, A. W. Porter & Co., Bridgeport, Ind.....	2 00

HERDS.

Boar and three sows over one year, Etzler & Moses, Convoy, Ohio.	20 00
Second premium, Wm. M. Gray, Crawfordsville, Ind.....	10 00
Boar and three sows under one year, Jas. Riley & Son, Thorn-	
town, Ind.	15 00
Second premium, I. N. Barker & Son, Thorntown, Ind.....	10 00
Five pigs under one year, the get of one boar or produce of one	
sow, Jas. Riley & Son, Thorntown, Ind.....	12 00
Second premium, I. N. Barker & Son, Thorntown, Ind.....	8 00
Pair pigs under six months old, I. N. Barker & Son, Thorntown,	
Ind.....	12 00
Second premium, W. F. Lillard, Lawrenceburg, Ky.....	8 00
Pair pigs under one year old, I. N. Barker & Son, Thorntown, Ind.	12 00
Second premium, W. F. Lillard, Lawrenceburg, Ky.....	8 00

SWEEPSTAKES.

Boar, any age, W. F. Lillard, Lawrenceburg, Ky.....	20 00
Sow, any age, Wm. M. Gray, Crawfordsville, Ind.....	20 00

CLASS XLI—Poland China.

(Lloyd Mugg, Judge, Kokomo, Ind.)

BOARS.

Two years old or over, Wm. Worl, Hagerstown, Ind.....	\$12 00
Second premium, J. W. Williams & Son, Briant, Ind.....	8 00
Third premium, K. E. Midkiff & Son, Shelbyville, Ind.....	4 00
One year old and under two, Harcourt & Johnson, New Augusta,	
Ind.....	10 00
Second premium, Lock & Wellington, Remington, Ind.....	7 00
Pumphrey Bros., Burney, Ind.....	3 00
Six months old and under twelve, A. S. Gilmour & Son, Greens-	
burg, Ind.	8 00
Second premium, Arbuckle & Sidener, Hope, Ind.....	5 00
Third premium, Adam F. May & Son, Thorntown, Ind.....	2 00
Under six months, Harcourt & Johnson, New Augusta, Ind.....	8 00
Second premium, Lock & Wellington, Remington, Ind.....	5 00
Third premium, Mavis Bros., Edgerton, Ohio.....	2 00

SOWS.

Two years old or over, K. E. Midkiff & Son, Shelbyville, Ind.....	12 00
Second premium, Mavis Bros., Edgerton, Ohio.....	8 00
Third premium, Lindley & Butler, Russiaville, Ind.....	4 00

One year old and under two, Mavis Bros., Edgerton, Ohio.....	10 00
Second premium, W. A. Smiley & Son, Judson, Ind.....	7 00
Third premium, John G. Allen, Millersville, Ind.....	3 00
Six months old and under twelve, J. W. Gartin & Sons, Burney, Ind.....	8 00
Second premium, W. A. Smiley & Son, Judson, Ind.....	5 00
Third premium, Arbuckle & Sidener, Hope, Ind.....	2 00
Under six months, Lock, Wellington & Smith, Remington, Ind....	8 00
Second premium, Lock, Wellington & Smith, Remington, Ind....	5 00
Third premium, Pumphery Bros., Burney, Ind.....	2 00

HERDS.

Boar and three sows over one year, Mavis Bros., Edgerton, Ohio..	20 00
Second premium, W. A. Smiley & Son, Judson, Ind.....	10 00
Boar and three sows under one year, A. S. Gilmour & Son, Greensburg, Ind.	15 00
Second premium, Arbuckle & Sidener, Hope, Ind.....	10 00
Five pigs under one year, the get of one boar or produce of one sow, A. S. Gilmour & Son, Greensburg, Ind.....	12 00
Second premium, W. A. Smiley & Son, Judson, Ind.....	8 00
Five pigs under six months old, Mavis Bros., Edgerton, Ohio.....	12 00
Second premium, Harcourt & Johnson, New Augusta, Ind.....	8 00
Pair pigs under one year old, Lock, Wellington & Smith, Remington, Ind.	12 00
Second premium, Harcourt & Johnson, New Augusta, Ind.....	8 00

SWEEPSTAKES.

Boar, any age, Harcourt & Johnson, New Augusta, Ind.....	20 00
Sow, any age, Mavis Bros., Edgerton, Ohio.....	20 00

CLASS XLII—Chester White and Cheshire.

(Lloyd Mugg, Kokomo, and John F. Stover, Crawfordsville, Judges.)

BOARS.

Two years old or over, Dorsey Bros., Perry, Ill.....	\$12 00
Second premium, J. Gibson & Son, Muncie, Ind.....	8 00
One year old and under two, Russell Bros., Zionsville, Ind.....	10 00
Second premium, Dorsey Bros., Perry, Ill.....	7 00
Third premium, H. P. & E. P. Wood, Franklin, Ind.....	3 00
Six months old and under twelve, Dorsey Bros., Perry, Ill.....	8 00
Second premium, Dorsey Bros., Perry, Ill.....	5 00
Third premium, J. Gibson & Son, Muncie, Ind.....	2 00
Under six months, Hinshaw Bros., Zionsville, Ind.....	8 00
Second premium, W. W. Milner & Son, Thorntown, Ind.....	5 00
Third premium, Hinshaw Bros., Zionsville, Ind.....	2 00

SOWS.

Two years old or over, H. P. & E. P. Wood, Franklin, Ind.....	12 00
Second premium, Dorsey Bros., Perry, Ill.....	8 00
Third premium, H. P. & E. P. Wood, Franklin, Ind.....	4 00
One year old and under two, Dorsey Bros., Perry, Ill.....	10 00
Second premium, Warren W. Trout, Greenwood, Ind.....	7 00
Third premium, Dorsey Bros., Perry, Ill.....	3 00
Six months old and under twelve, Dorsey Bros., Perry, Ill.....	8 00
Second premium, Hinshaw Bros., Zionsville, Ind.....	5 00
Third premium, Dorsey Bros., Perry, Ill.....	2 00
Under six months, J. Gibson & Son, Muncie, Ind.....	8 00
Second premium, Russell Bros., Zionsville, Ind.....	5 00
Third premium, Hinshaw Bros., Zionsville, Ind.....	2 00

HERDS.

Boar and three sows over one year, Dorsey Bros., Perry, Ill.....	20 00
Second premium, H. P. & E. P. Wood, Franklin, Ind.....	10 00
Boar and three sows under one year, Dorsey Bros., Perry, Ill.....	15 00
Second premium, Hinshaw Bros., Zionsville, Ind.....	10 00
Five pigs under one year, the get of one boar or produce of one sow, Dorsey Bros., Perry, Ill.....	12 00
Second premium, H. M. Smith, Hall, Ind.....	8 00
Five pigs under six months old, H. M. Smith, Hall, Ind.....	12 00
Second premium, Hinshaw Bros., Zionsville, Ind.....	8 00
Pair pigs under one year old, Dorsey Bros., Perry, Ill.....	12 00
Second premium, Hinshaw Bros., Zionsville, Ind.....	8 00

SWEEPSTAKES.

Boar any age, Dorsey Bros., Perry, Ill.....	20 00
Sow, any age, Dorsey Bros., Perry, Ill.....	20 00
Standard Chester White Record Association Special.	
One boar and two sows over one year and two sows under one year, Dorsey Bros., Perry, Ill.....	10 00

CLASS XLIII—Duroc-Jersey, Tamworth and Thin Rind.

(D. W. Brown, Judge, Union City, Ind.)

BOARS.

Two years old or over, J. B. Jones, Franklin, Ind.....	\$12 00
Second premium, J. B. Hilligoss & Son, Anderson, Ind.....	8 00
One year old and under two, Iva Jackson, West Milton, Ohio.....	10 00
Second premium, G. C. Richwine & Co., Noblesville, Ind.....	7 00

Third premium, J. B. Hilligoss & Son, Anderson, Ind.....	3 00
Six months old and under twelve, Iva Jackson, West Milton, Ohio.	8 00
Second premium, Iva Jackson, West Milton, Ohio.....	5 00
Third premium, J. B. Jones, Franklin, Ind.....	2 00
Under six months, Marion Stultz, Carmel, Ind.....	8 00
Second premium, Iva Jackson, West Milton, Ohio.....	5 00
Third premium, J. B. Jones, Franklin, Ind.....	2 00

SOWS.

Two years old or over, J. B. Hilligoss & Son, Anderson, Ind.....	12 00
Second premium, J. B. Jones, Franklin, Ind.....	8 00
Third premium, J. B. Hilligoss & Son, Anderson, Ind.....	4 00
One year old and under two, J. B. Jones, Franklin, Ind.....	10 00
Second premium, J. B. Jones, Franklin, Ind.....	7 00
Third premium, J. B. Hilligoss & Son, Anderson, Ind.....	3 00
Six months old and under twelve, Iva Jackson, West Milton, Ohio.	8 00
Second premium, Iva Jackson, West Milton, Ohio.....	5 00
Third premium, Iva Jackson, West Milton, Ohio.....	2 00
Under six months, Iva Jackson, West Milton, Ohio.....	8 00
Second premium, J. B. Jones, Franklin, Ind.....	5 00
Third premium, Marion Stultz, Carmel, Ind.....	2 00

HERDS.

Boar and three sows over one year, J. B. Jones, Franklin, Ind....	20 00
Second premium, J. B. Hilligoss & Son, Anderson, Ind.....	10 00
Boar and three sows under one year, Iva Jackson, West Milton, Ohio.....	15 00
Second premium, G. C. Richwine & Co., Noblesville, Ind.....	10 00
Five pigs under one year, the get of one boar or the produce of one sow, Iva Jackson, West Milton, Ohio.....	12 00
Second premium, J. B. Hilligoss & Son, Anderson, Ind.....	8 00
Five pigs under six months, Iva Jackson, West Milton, Ohio....	12 00
Second premium, Marion Stultz, Carmel, Ind.....	8 00
Pair pigs under one year old, Iva Jackson, West Milton, Ohio....	12 00
Second premium, Marion Stultz, Carmel, Ind.....	8 00

SWEEPSTAKES.

Boar, any age, J. B. Jones, Franklin, Ind.....	20 00
Sow, any age, Iva Jackson, West Milton, Ohio.....	20 00

CLASS XLIV—Duroc-Jersey Special.

(D. W. Brown, Judge, Union City, Ind.)

Best Duroc-Jersey boar and sow under six months, bred and owned by exhibitor, Marion Stultz, Carmel, Ind.....	25 00
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Best herd of Duroc-Jerseys, consisting of one boar and four sows, under six months, bred and owned by exhibitor, Marion Stultz, Carmel, Ind.	25 00
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National Duroc-Jersey Record Association Special.

(D. W. Brown, Judge, Union City, Ind.)

Best young Duroc-Jersey breeding herd, Iva Jackson, West Milton, Ohio.....	20 00
Best Duroc-Jersey boar, J. B. Jones, Franklin, Ind.....	10 00
Best Duroc-Jersey sow, Iva Jackson, West Milton, Ohio.....	10 00

CLASS XLV—Essex.

(Lloyd Mugg, Judge, Kokomo, Ind.)

BOARS.

Two years old or over, A. C. Green & Sons, Winchester, Ind.....	\$5 00
One year old and under two, A. C. Green & Sons, Winchester, Ind.....	4 00
Six months old and under twelve, A. C. Green & Sons, Winchester, Ind.....	3 00
Under six months, A. C. Green & Sons, Winchester, Ind.....	3 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

SOWS.

Two years old or over, A. C. Green & Sons, Winchester, Ind.....	5 00
One year old and under two, A. C. Green & Sons, Winchester, Ind.....	4 00
Six months old and under twelve, A. C. Green & Sons, Winchester, Ind.....	3 00
Under six months, A. C. Green & Sons, Winchester, Ind.....	3 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

HERDS.

Boar and three sows over one year old, A. C. Green, & Sons, Winchester, Ind.	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	3 00
Boar and three sows under one year, A. C. Green & Sons, Winchester, Ind.	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	3 00

Five pigs under one year, the get of one boar or produce of one sow, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00
Five pigs under six months old, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00
Pair pigs under one year old, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

CLASS XLVI—Suffolk.

(Lloyd Mugg, Judge, Kokomo, Ind.)

BOARS.

Two years old or over, A. C. Green & Sons, Winchester, Ind.....	\$5 00
One year old and under two, A. C. Green & Sons, Winchester, Ind.....	4 00
Six months old and under twelve, A. C. Green & Sons, Winchester, Ind.....	3 00
Under six months, A. C. Green & Sons, Winchester, Ind.....	3 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

SOWS.

Two years old or over, A. C. Green & Sons, Winchester, Ind.....	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	3 00
One year old and under two, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00
Six months old and under twelve, A. C. Green & Sons, Winchester, Ind.....	3 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00
Under six months, A. C. Green & Sons, Winchester, Ind.....	3 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

HERDS.

Boar and three sows over one year, A. C. Green & Sons, Winchester, Ind.	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	3 00
Boar and three sows under one year, A. C. Green & Sons, Winchester, Ind.	5 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	3 00
Five pigs under one year, the get of one boar or produce of one sow, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

Five pigs under six months, A. C. Green & Sons, Winchester, Ind.	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00
Pair pigs under one year old, A. C. Green & Sons, Winchester, Ind.	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	4 00
Second premium, A. C. Green & Sons, Winchester, Ind.....	2 00

CLASS XLVII—Victoria, Large Yorkshire and Small Yorkshire.

(D. W. Brown, Judge, Union City, Ind.)

BOARS.

Two years old or over, Davis Bros., Dyer, Ind.....	\$5 00
One year old and under two, Davis Bros., Dyer, Ind.....	4 00
Second premium, Davis Bros., Dyer, Ind.....	2 00
Six months old and under twelve, Davis Bros., Dyer, Ind.....	3 00
Second premium, Davis Bros., Dyer Ind.....	2 00
Under six months old, W. E. Rockhill, Etna Green, Ind.....	3 00

SOWS.

Two years old or over, Davis Bros., Dyer, Ind.....	5 00
Second premium, Davis Bros., Dyer, Ind.....	3 00
One year old and under two, Davis Bros., Dyer, Ind.....	4 00
Second premium, Davis Bros., Dyer, Ind.....	2 00
Six months old and under twelve, W. E. Rockhill, Etna Green, Ind.....	3 00
Under six months old, Davis Bros., Dyer, Ind.....	3 00
Second premium, Davis Bros., Dyer, Ind.....	2 00

HERDS.

Boar and three sows over one year, Davis Bros., Dyer, Ind.....	5 00
Second premium, Davis Bros., Dyer Ind.....	3 00
Boar and three sows under one year, Davis Bros, Dyer, Ind.....	5 00
Second premium, Davis Bros., Dyer Ind.....	3 00
Five pigs under one year, the get of one boar or produce of one sow, Davis Bros., Dyer, Ind.....	4 00
Second premium, Davis Bros., Dyer, Ind.....	2 00
Five pigs under six months old, Davis Bros., Dyer, Ind.....	4 00
Second premium, Davis Bros., Dyer, Ind.....	2 00
Pair pigs under one year old, Davis Bros., Dyer, Ind.....	4 00
Second premium, W. E. Rockhill, Etna Green, Ind.....	2 00

POULTRY.

CLASS XLVIII—Mediterranean.

(T. E. Orr, Beaver, Pa., and Theo. Hewes, Indianapolis, Ind., Judges.)

Black Minorca cock, C. E. & W. Smith, Ashley, Ohio.....	\$3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Bertle Doty, Charleston, Ill.....	1 00
Black Minorca hen, J. & C. Bruck, Pleasanton, Ohio.....	3 00
Second premium, W. O. Swain, Arlington, Ind.....	2 00
Third premium, Bertle Doty, Charleston, Ill.....	1 00
Black Minorca cockerel, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, J. & C. Bruck, Pleasanton, Ohio.....	1 00
Black Minorca pullet, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Black Minorca pen, C. E. & W. Smith, Ashley, Ohio.....	5 00
Second premium, J. & C. Bruck, Pleasanton, Ohio.....	3 00
Third premium, W. O. Swain, Arlington, Ind.....	2 00
White Minorca cock, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
White Minorca hen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
White Minorca cockerel, C. E. & W. Smith, Ashley, Ohio.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, T. N. Smiley & Son, Milligan, Ind.....	Ribbon
White Minorca pullet, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	Ribbon
White Minorca pen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, J. J. Burnside, Milligan, Ind.....	Ribbon
Blue Andalusian cock, Bertle Doty, Charleston, Ill.....	1 00
Second premium, W. H. McQueston, Whiteland, Ind.....	50
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
Blue Andalusian hen, Bertle Doty, Charleston, Ill.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, W. H. McQueston, Whiteland, Ind.....	Ribbon
Blue Andalusian pullet, Bertle Doty, Charleston, Ill.....	50
Second premium, Bertle Doty, Charleston, Ill.....	Ribbon
Blue Andalusian pen, Bertle Doty, Charleston, Ill.....	1 00

Black Spanish cock, C. E. & W. Smith, Ashley, Ohio.....	1 00
Second premium, J. S. Smiley & Son, Milligan, Ind.....	50
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
Black Spanish hen, J. S. Smiley & Son, Milligan, Ind.....	3 00
Second premium, J. A. Horning.....	2 00
Third premium, J. A. Horning.....	1 00
Black Spanish cockerel, J. A. Horning.....	2 00
Second premium, J. S. Smiley & Son, Milligan, Ind.....	1 00
Third premium, J. S. Smiley & Son, Milligan, Ind.....	Ribbon
Black Spanish pullet, J. A. Horning.....	2 00
Second premium, J. S. Smiley & Son, Milligan, Ind.....	1 00
Third premium, J. S. Smiley & Son, Milligan, Ind.....	Ribbon
Black Spanish pen, J. A. Horning.....	3 00
Second premium, J. S. Smiley & Son, Milligan, Ind.....	2 00

POLISH.

White-crested black cock, W. H. McQueston, Whiteland, Ind....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, J. J. Burnside, Milligan, Ind.....	Ribbon
White-crested black hen, F. M. Meloy, Shelbyville, Ind.....	2 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	1 00
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
White-crested black cockerel, J. J. Burnside, Milligan, Ind.....	2 00
Second premium, C. A. Johnson, Greenfield, Ind.....	1 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	Ribbon
White-crested black pullet, F. M. Meloy, Shelbyville, Ind.....	2 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	1 00
Third premium, J. J. Burnside, Milligan, Ind.....	Ribbon
White-crested black pen, F. M. Meloy, Shelbyville, Ind.....	1 00
Second premium, J. J. Burnside, Milligan, Ind.....	Ribbon
Silver-bearded hen, Bertle Doty, Charleston, Ill.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
Silver-bearded cockerel, Bertle Doty, Charleston, Ill.....	50

HAMBURG.

Silver-spangled cock, Bertle Doty, Charleston, Ill.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, T. N. Smiley & Son, Milligan, Ind.....	Ribbon
Silver-spangled hen, F. M. Meloy, Shelbyville, Ind.....	3 00
Second premium, Bertle Doty, Charleston, Ill.....	2 00
Third premium, Bertle Doty, Charleston, Ill.....	1 00
Silver-spangled cockerel, Bertle Doty, Charleston, Ill.....	2 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	1 00

Third premium, T. N. Smiley & Son, Milligan, Ind.....	Ribbon
Silver-spangled pullet, Bertle Doty, Charleston, Ill.....	2 00
Second premium, Warbritton Bros., Ladoga, Ind.....	1 00
Third premium, H. H. Swaim, South Bend, Ind.....	Ribbon
Silver-spangled pen, Bertle Doty, Charleston, Ill.....	5 00
Second premium, H. H. Swaim, South Bend, Ind.....	3 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	2 00

HOUDANS.

Houdan cock, J. J. Van Winkle, Mechanicsburg, Ind.....	2 00
Second premium, Robert L. Higert, Greencastle, Ind.....	1 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Houdan hen, Bertle Doty, Charleston, Ill.....	3 00
Second premium, Robert L. Higert, Greencastle, Ind.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Houdan cockerel, Robert L. Higert, Greencastle, Ind.....	3 00
Second premium, Bertle Doty, Charleston, Ill.....	2 00
Third premium, Warbritton Bros., Ladoga, Ind.....	1 00
Houdan pullet, Robert L. Higert, Greencastle, Ind.....	3 00
Second premium, Warbritton Bros., Ladoga, Ind.....	2 00
Third premium, J. J. Van Winkle, Mechanicsburg, Ind.....	1 00
Houdan pen, Robert L. Higert, Greencastle, Ind.....	5 00
Second premium, Bertle Doty, Charleston, Ill.....	3 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	2 00

DORKINGS.

Silver gray cock, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
Silver gray hen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Silver gray cockerel, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Silver gray pullet, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Silver gray pen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	1 00

ASIATICS.

Buff Cochin cock, J. J. Van Winkle, Mechanicsburg, Ind.....	3 00
Second premium, J. J. Burnside, Milligan, Ind.....	2 00
Third premium, Warbritton Bros., Ladoga, Ind.....	1 00
Buff Cochin hen, C. A. Johnson, Greenfield, Ind.....	3 00
Second premium, J. J. Burnside, Milligan, Ind.....	2 00
Third premium, Warbritton Bros., Ladoga, Ind.....	1 00
Buff Cochin cockerel, John E. Walker, Martinsville, Ind.....	3 00
Second premium, John E. Walker, Martinsville, Ind.....	2 00
Third premium, John E. Walker, Martinsville, Ind.....	1 00
Buff Cochin pullet, John E. Walker, Martinsville, Ind.....	3 00
Second premium, C. A. Johnson, Greenfield, Ind.....	2 00
Third premium, John E. Walker, Martinsville Ind.....	1 00
Buff Cochin pen, John E. Walker, Martinsville, Ind.....	5 00
Second premium, John E. Walker, Martinsville, Ind.....	3 00
Third premium, C. A. Johnson, Greenfield, Ind.....	2 00
Partridge Cochin cock, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, Warbritton Bros., Ladoga, Ind.....	1 00
J. S. Smiley & Son, Milligan, Ind.....	Ribbon
Partridge Cochin hen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Warbritton Bros., Ladoga, Ind.....	1 00
Partridge Cochin cockerel, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, J. S. Smiley & Son, Milligan, Ind.....	1 00
Third premium, J. S. Smiley & Son, Milligan, Ind.....	Ribbon
Partridge Cochin pullet, C. E. & W. Smith, Ashley, Ohio.....	2 00
Second premium, Warbritton Bros., Ladoga, Ind.....	1 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Partridge Cochin pen, C. E. & W. Smith, Ashley, Ohio.....	1 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
White Cochin cock, T. N. Smiley & Son, Milligan, Ind.....	2 00
Second premium, Warbritton Bros., Ladoga, Ind.....	1 00
Third premium, W. O. Swaim, Arlington, Ind.....	Ribbon
White Cochin hen, Warbritton Bros., Ladoga, Ind.....	3 00
Second premium, Warbritton Bros., Ladoga, Ind.....	2 00
Third premium, Bertle Doty, Charleston, Ill.....	1 00
White Cochin cockerel, Bertle Doty, Charleston, Ill.....	1 00
Second premium, Warbritton Bros., Ladoga, Ind.....	50
Third premium, Warbritton Bros., Ladoga, Ind.....	Ribbon
White Cochin pullet, Bertle Doty, Charleston, Ill.....	2 00
Second premium, Warbritton Bros., Ladoga, Ind.....	1 00
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
White Cochin pen, Bertle Doty, Charleston, Ill.....	5 00
Second premium, Warbritton Bros., Ladoga, Ind.....	3 00

Third premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Black Cochín cock, Mrs. R. W. Williams, Indianapolis.....	2 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Third premium, J. S. Smiley & Son, Milligan, Ind.....	Ribbon
Black Cochín hen, Louis Seidensticker & Son, Brightwood, Ind....	3 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Black Cochín cockerel, Mrs. R. W. Williams, Indianapolis.....	3 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Black Cochín pullet, T. N. Smiley & Son, Milligan, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Black Cochín pen, Mrs. R. W. Williams, Indianapolis.....	5 00
Second premium, Louis Seidensticker & Son, Brightwood, Ind....	3 00
Third premium, J. S. Smiley & Son, Milligan, Ind.....	2 00
Black Langshan cock, J. J. Van Winkle, Mechanicsburg, Ind.....	2 00
Second premium, R. L. Moore, Kokomo, Ind.....	1 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	Ribbon
Black Langshan hen, T. N. Smiley & Son, Milligan, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Black Langshan cockerel, Lindley & Butler, Russiaville, Ind.....	2 00
Second premium, Lindley & Butler, Russiaville, Ind.....	1 00
Third premium, Thos. A. Baughn, Loree, Ind.....	Ribbon
Black Langshan pullet, Lindley & Butler, Russiaville, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, Thos. A. Baughn, Loree, Ind.....	1 00
Black Langshan pen, T. N. Smiley & Son, Milligan, Ind.....	5 00
Second premium, Lindley & Butler, Russiaville, Ind.....	3 00
Third premium, Thos. A. Baughn, Loree, Ind.....	2 00
White Langshan cock, T. N. Smiley & Son, Milligan, Ind.....	2 00
Second premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
White Langshan hen, T. N. Smiley & Son, Milligan, Ind.....	3 00
T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
White Langshan cockerel, T. N. Smiley & Son, Milligan, Ind.....	2 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
White Langshan pullet, T. N. Smiley & Son, Milligan, Ind.....	2 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
White Langshan pen, T. N. Smiley & Son, Milligan, Ind.....	5 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	3 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	2 00

MEDITERRANEAN.

Single-comb Br. Leghorn cock, Louis Seidensticker & Son, Brightwood, Ind.	3 00
Second premium, J. J. Burnsidess, Milligan, Ind.....	2 00
Third premium, J. J. Burnsidess, Milligan, Ind.....	1 00
Single-comb Br. Leghorn hen, Ed B. Murphy, Carmel, Ind.....	3 00
Second premium, J. J. Burnsidess, Milligan, Ind.....	2 00
Third premium, J. J. Burnsidess, Milligan, Ind.....	
Single-comb Br. Leghorn cockerel, Chas. E. Adair, Columbus, Ohio	3 00
Second premium, J. J. Burnsidess, Milligan, Ind.....	2 00
Third premium, Ed B. Murphy, Carmel, Ind.....	1 00
Single-comb Brown Leghorn pullet, Ed B. Murphy, Carmel, Ind...	3 00
Second premium, Chas. E. Adair, Columbus, Ohio.....	2 00
Third premium, Ed B. Murphy, Carmel, Ind.....	1 00
Single-comb Brown Leghorn pen, Chas. E. Adair, Columbus, Ohio	5 00
Second premium, Ed B. Murphy, Carmel, Ind.....	3 00
Third premium, J. J. Burnsidess, Milligan, Ind.....	2 00
Rose-comb Brown Leghorn cock, T. N. Smiley & Son, Milligan, Ind.	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Rose-comb Brown Leghorn hen, C. E. & W. Smith, Ashley, Ohio..	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Rose-comb Brown Leghorn cockerel, C. E. & W. Smith, Ashley, Ohio	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Rose-comb Brown Leghorn pullet, C. E. & W. Smith, Ashley, Ohio	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Rose-comb Brown Leghorn pen, C. E. & W. Smith, Ashley, Ohio..	5 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	3 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Single-comb White Leghorn cock, J. H. Delfendahl, Foster, Ohio..	
Second premium, B. F. Hill, Indianapolis.....	2 00
Third premium, J. J. Van Winkle, Mechanicsburg, Ind.....	1 00
Single-comb White Leghorn hen, B. F. Hill, Indianapolis.....	3 00
Second premium, J. J. Burnsidess, Milligan, Ind.....	2 00
Third premium, Louis Seidensticker & Son, Brightwood, Ind.....	1 00
Single-comb White Leghorn cockerel, J. J. Van Winkle, Mechanicsburg, Ind.	3 00
Second premium, B. F. Hill, Indianapolis.....	2 00
Third premium, B. F. Hill, Indianapolis.....	1 00
Single-comb White Leghorn pullet, Chas. E. Adair, Columbus, Ohio	3 00
Second premium, Chas. E. Adair, Columbus, Ohio.....	2 00

Third premium, J. J. Van Winkle, Mechanicsburg.....	1 00
Single-comb White Leghorn pen, B. F. Hill, Indianapolis.....	5 00
Second premium, J. J. Van Winkle, Mechanicsburg, Ind.....	3 00
Third premium, B. F. Hill, Indianapolis.....	2 00
Rose-comb White Leghorn cock, W. O. Swaim, Arlington, Ind.....	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Third premium, W. O. Swaim, Arlington, Ind.....	Ribbon
Rose-comb White Leghorn cock, W. O. Swaim, Arlington, Ind.....	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Third premium, W. O. Swaim, Arlington, Ind.....	Ribbon
Rose-comb White Leghorn hen, W. O. Swaim, Arlington, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, W. O. Swaim, Arlington, Ind.....	1 00
Rose-comb White Leghorn cockerel, Bertle Doty, Charleston, Ill..	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Rose-comb White Leghorn pullet, C. E. & W. Smith, Ashley, Ohio	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Rose-comb White Leghorn pen, C. E. & W. Smith, Ashley, Ohio..	5 00
Second premium, W. O. Swaim, Arlington, Ind.....	3 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Single-comb Buff Leghorn cock, Chas. E. Bernhardt, Irvington, Ind.	2 00
Second premium, Sorosis Poultry Farm, Salem, Ohio.....	1 00
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
Single-comb Buff Leghorn hen, Louis Seidensticker & Son, Bright- wood, Ind.	3 00
Second premium, Louis Seidensticker & Son, Brightwood, Ind....	2 00
Third premium, J. F. Essex, Indianapolis.....	1 00
Single-comb Buff Leghorn cockerel, Louis Seidensticker & Son, Brightwood, Ind.	3 00
Second premium, A. L. Barnes, Southport, Ind.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Single-comb Buff Leghorn pullet, J. F. Essex, Indianapolis.....	3 00
Second premium, Sorosis Poultry Farm, Salem, Ohio.....	2 00
Third premium, Chas. E. Bernhardt, Irvington, Ind.....	1 00
Single-comb Buff Leghorn pen, Chas. E. Bernhardt, Irvington, Ind.	5 00
Second premium, Bertle, Doty, Charleston, Ill.....	3 00
Third premium, J. F. Essex, Indianapolis.....	1 00

AMERICAN.

Barred Plymouth Rock cock, Thos. Taggart, Indianapolis.....	3 00
Second premium, Ed B. Murphy, Carmel, Ind.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Barred Plymouth Rock hen, Thos. Taggart, Jr., Indianapolis.....	3 00

Second premium, Ed B. Murphy, Carmel, Ind.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Barred Plymouth Rock cockerel, Thos. Taggart, Jr., Indianapolis..	3 00
Second premium, Ed B. Murphy, Carmel, Ind.....	2 00
Third premium, Thos. Taggart, Jr., Indianapolis.....	1 00
Barred Plymouth Rock pullet, J. A. Horning.....	3 00
Second premium, J. A. Horning.....	2 00
Third premium, Queen, Horn & Wells, DuQuoin, Ill.....	1 00
Barred Plymouth Rock pen, Thos. Taggart, Jr., Indianapolis.....	5 00
Second premium, Ed B. Murphy, Carmel, Ind.....	3 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	2 00
White Plymouth Rock cock, U. R. Fishel, Hope, Ind.....	3 00
Second premium, U. R. Fishel, Hope, Ind.....	2 00
Third premium, U. R. Fishel, Hope, Ind.....	1 00
White Plymouth Rock hen, U. R. Fishel, Hope, Ind.....	3 00
Second premium, Chas. E. Adair, Columbus, Ohio.....	2 00
Third premium, U. R. Fishel, Hope, Ind.....	1 00
White Plymouth Rock cockerel, U. R. Fishel, Hope, Ind.....	3 00
Second premium, J. R. Mathias, Boggstown, Ind.....	2 00
Third premium, U. R. Fishel, Hope, Ind.....	1 00
White Plymouth Rock pullet, U. R. Fishel, Hope, Ind.....	3 00
Second premium, U. R. Fishel, Hope, Ind.....	2 00
Third premium, J. R. Mathias, Boggstown, Ind.....	1 00
White Plymouth Rock pen, U. R. Fishel, Hope, Ind.....	5 00
Second premium, U. R. Fishel, Hope, Ind.....	3 00
Third premium, U. R. Fishel, Hope, Ind.....	2 00
Buff Plymouth Rock cock, A. L. Weckler, Bunker Hill, Ind.....	3 00
Second premium, John F. Crowe, Malott Park, Ind.....	2 00
Third premium, A. L. Weckler, Bunker Hill, Ind.....	1 00
Buff Plymouth Rock hen, A. L. Weckler, Bunker Hill, Ind.....	3 00
Second premium, Rudolph Poultry Yards, Rudolph, Ohio.....	2 00
Third premium, John F. Crowe, Malott Park, Ind.....	1 00
Buff Plymouth Rock cockerel, Huddleston Poultry Farm, Ander- son, Ind.	3 00
Second premium, A. L. Weckler, Bunker Hill, Ind.....	2 00
Third premium, A. L. Weckler, Bunker Hill, Ind.....	1 00
Buff Plymouth Rock pullet, Rudolph Poultry Yards, Rudolph, Ohio	3 00
Second premium, A. L. Weckler, Bunker Hill, Ind.....	2 00
Third premium, A. L. Weckler, Bunker Hill, Ind.....	1 00
Buff Plymouth Rock pen, A. L. Weckler, Bunker Hill, Ind.....	5 00
Second premium, John F. Crowe, Mallot Park, Ind.....	3 00
Third premium, A. L. Weckler, Bunker Hill, Ind.....	2 00
Silver Wyandotte cock, F. M. Meloy, Shelbyville, Ind.....	3 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	2 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	1 00

Silver Wyandotte hen, J. J. Van Winkle, Mechanicsburg, Ind.....	3 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	2 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	1 00
Silver Wyandotte cockerel, F. M. Meloy, Shelbyville, Ind.....	1 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	50
Third premium, Beaver Hill Farm, Beaver, Pa.....	Ribbon
Silver Wyandotte pullet, F. M. Meloy, Shelbyville, Ind.....	3 00
Second premium, Beaver Hill Farm, Beaver, Pa.....	2 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	1 00
Silver Wyandotte pen, F. M. Meloy, Shelbyville, Ind.....	5 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	3 00
Third premium, Beaver Hill Farm, Beaver, Pa.....	2 00
Golden Wyandotte cock, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, J. J. Burnside, Milligan, Ind.....	2 00
Third premium, B. F. Whaley, Shelbyville, Ind.....	1 00
Golden Wyandotte hen, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	2 00
Third premium, J. A. Horning.....	1 00
Golden Wyandotte cockerel, C. E. & W. Smith, Ashley, Ohio.....	1 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	50
Third premium, J. J. Burnside, Milligan, Ind.....	Ribbon
Golden Wyandotte pullet, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Golden Wyandotte pen, C. E. & W. Smith, Ashley, Ohio.....	5 00
Second premium, J. J. Burnside, Milligan, Ind.....	3 00
Third premium, B. F. Whaley, Shelbyville, Ind.....	2 00
White Wyandotte cock, D. C. Harold, Elwood, Ind.....	3 00
Second premium, Norton Poultry Farm, Antioch, Ill.....	2 00
Third premium, Norton Poultry Farm, Antioch, Ill.....	1 00
White Wyandotte hen, Norton Poultry Farm, Antioch, Ill.....	3 00
Second premium, D. C. Harold, Elwood, Ind.....	2 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	1 00
White Wyandotte cockerel, Norton Poultry Farm, Antioch, Ill.....	3 20
Second premium, W. D. Simmons, DeSoto, Ind.....	2 00
Third premium, F. M. Meloy, Shelbyville, Ind.....	1 00
White Wyandotte pullet, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, D. C. Harold, Elwood, Ind.....	2 00
Third premium, Norton Poultry Farm, Antioch, Ill.....	1 00
White Wyandotte pen, D. C. Harold, Elwood, Ind.....	5 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	3 00
Third premium, Norton Poultry Farm, Antioch, Ill.....	2 00
Buff Wyandotte cock, D. C. Harold, Elwood, Ind.....	2 00
Second premium, D. C. Harold, Elwood, Ind.....	1 00
Third premium, S. B. Lane, Spiceland, Ind.....	Ribbon

Buff Wyandotte hen, D. C. Harold, Elwood, Ind.....	3 00
Second premium, S. B. Lane, Spiceland, Ind.....	2 00
Third premium, John F. Crowe, Malott Park, Ind.....	Ribbon
Buff Wyandotte cockerel, D. C. Harold, Elwood, Ind.....	2 00
Second premium, S. B. Lane, Spiceland, Ind.....	1 00
Third premium, S. B. Lane, Spiceland, Ind.....	Ribbon
Buff Wyandotte pullet, D. C. Harold, Elwood, Ind.....	3 00
Second premium, D. C. Harold, Elwood, Ind.....	2 00
Third premium, D. C. Harold, Elwood, Ind.....	1 00
Buff Wyandotte pen, D. C. Harold, Elwood, Ind.....	5 00
Second premium, S. B. Lane, Spiceland, Ind.....	3 00
Third premium, D. C. Harold, Elwood, Ind.....	2 00
Partridge Wyandotte cock, Beaver Hill Farm, Beaver, Pa.....	50
Partridge Wyandotte hen, Beaver Hill Farm, Beaver Pa.....	50
Second premium, Beaver Hill Farm, Beaver, Pa.....	Ribbon
Partridge Wyandotte cockerel, Beaver Hill Farm, Beaver, Pa.....	50
Partridge Wyandotte pullet, Beaver Hill Farm, Beaver, Pa.....	50
Partridge Wyandotte pen, Beaver Hill Farm, Beaver, Pa.....	Ribbon
Buff Orpington Cock, Beaver Hill Farm, Beaver, Pa.....	50
Second premium, C. S. Byers, Hazelrigg, Ind.....	Ribbon
Buff Orpington hen, C. S. Byers, Hazelrigg, Ind.....	1 00
Second premium, Beaver Hill Farm, Beaver, Pa.....	50
Third premium, C. S. Byers, Hazelrigg, Ind.....	Ribbon
Buff Orpington cockerel, Beaver Hill Farm, Beaver, Pa.....	1 00
Second premium, C. S. Byers, Hazelrigg, Ind.....	50
Third premium, C. S. Byers, Hazelrigg, Ind.....	Ribbon
Buff Orpington Pullet, C. S. Byers, Hazelrigg, Ind.....	1 00
Second premium, C. S. Byers, Hazelrigg, Ind.....	50
Third premium, C. S. Byers, Hazelrigg, Ind.....	Ribbon
Buff Orpington pen, C. S. Byers, Hazelrigg, Ind.....	1 00
Second premium, C. S. Byers, Hazelrigg, Ind.....	Ribbon
Light Brahma cock, Frank P. Johnson, Howland, Ind.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Frank P. Johnson, Howland, Ind.....	1 00
Light Brahma hen, Frank P. Johnson, Howland, Ind.....	3 00
Second premium, Frank P. Johnson, Howland, Ind.....	2 00
Third premium, I. N. Barker & Son, Thorntown, Ind.....	1 00
Light Brahma cockerel, Frank P. Johnson, Howland, Ind.....	3 00
Second premium, Frank P. Johnson, Howland, Ind.....	2 00
Third premium, I. N. Barker & Son, Thorntown, Ind.....	1 00
Light Brahma pullet, Frank P. Johnson, Howland, Ind.....	3 00
Second premium, I. N. Barker & Son, Thorntown, Ind.....	2 00
Third premium, Frank P. Johnson, Howland, Ind.....	1 00
Light Brahma pen, Frank P. Johnson, Howland, Ind.....	5 00
Second premium, Frank P. Johnson, Howland, Ind.....	3 00

Third premium, I. N. Barker & Son, Thorntown, Ind.	2 00
Dark Brahma cock, T. N. Smiley & Son, Milligan, Ind.	3 00
Second premium, Warbritton Bros., Ladoga, Ind.	2 00
Third premium, Warbritton Bros., Ladoga, Ind.	1 00
Dark Brahma hen, Mrs. R. W. Williams, Indianapolis.	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.	1 00
Light Brahma cockerel, C. E. & W. Smith, Ashley, Ohio.	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.	2 00
Third premium, B. F. Duncan, Greenfield, Ind.	1 00
Light Brahma pullet, C. E. & W. Smith, Ashley, Ohio.	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.	1 00
Light Brahma pen, C. E. & W. Smith, Ashley, Ohio.	5 00
Second premium, Warbritton Bros., Ladoga, Ind.	3 00
Third premium, Mrs. R. W. Williams, Indianapolis.	2 00
Black-breasted Red cock, H. D. Lane, Indianapolis.	2 00
Second premium, H. D. Lane, Indianapolis.	1 00
Third premium, H. D. Lane, Indianapolis.	Ribbon
Black-breasted Red hen, Wesley Lanius, Greensburg, Ind.	2 00
Second premium, Wesley Lanius, Greensburg, Ind.	2 00
Third premium, H. D. Lane, Indianapolis.	1 00
Black-breasted Red cockerel, Wesley Lanius, Greensburg, Ind.	2 00
Second premium, H. D. Lane, Indianapolis.	1 00
Third premium, H. D. Lane, Indianapolis.	Ribbon
Black-breasted Red pullet, Wesley Lanius, Greensburg, Ind.	3 00
Second premium, H. D. Lane, Indianapolis.	2 00
Third premium, H. D. Lane, Indianapolis.	1 00
Black-breasted Red pen, H. D. Lane, Indianapolis.	5 00
Second premium, Wesley Lanius, Greensburg, Ind.	3 00
Third premium, H. D. Lane, Indianapolis.	2 00
Pit Game cock, H. P. Clarke, Indianapolis.	3 00
Second premium, Philip Unger, Indianapolis.	2 00
Third premium, H. P. Clarke, Indianapolis.	1 00
Pit Game hen, H. P. Clarke, Indianapolis.	3 00
Second premium, H. P. Clarke, Indianapolis.	2 00
Third premium, Philip Unger, Indianapolis.	1 00
Pit Game cockerel, H. P. Clarke, Indianapolis.	3 00
Second premium, Philip Unger, Indianapolis.	2 00
Third premium, Wesley Lanius, Greensburg, Ind.	1 00
Pit Game pullet, H. P. Clarke, Indianapolis.	3 00
Second premium, Wesley Lanius, Greensburg, Ind.	2 00
Third premium, Philip Unger, Indianapolis.	1 00
Pit Game pen, H. P. Clarke, Indianapolis.	5 00
Second premium, Philip Unger, Indianapolis.	3 00

Third premium, Wesley Lanius, Greensburg, Ind.....	2 00
Cornish Indian cock, Lewis Frick, Loree, Ind.....	2 00
Second premium, John W. Brodhag, Olinville, Ind.....	1 00
Third premium, Wesley Lanius, Greensburg, Ind.....	Ribbon
Cornish Indian hen, John W. Brodhag, Olinville, Ind.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, Lewis Frick, Loree, Ind.....	1 00
Cornish Indian cockerel, Sorosis Poultry Farm, Salem, Ohio.....	2 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Third premium, Sorosis Poultry Farm, Salem, Ohio.....	Ribbon
Cornish Indian pullet, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, Wesley Lanius, Greensburg, Ind.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Cornish Indian pen, Lewis Frick, Loree, Ind.....	5 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	3 00
Third premium, John W. Brodhag, Olinville, Ind.....	2 00

GAME BANTAMS.

Black-breasted Red cock, R. R. Voris, Peoria, Ill.....	3 00
Second premium, Wesley Lanius, Greensburg, Ind.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Black-breasted Red hen, R. R. Voris, Peoria, Ill.....	3 00
Second premium, R. R. Voris, Peoria, Ill.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Black-breasted Red cockerel, R. R. Voris, Peoria, Ill.....	3 00
Second premium, R. R. Voris, Peoria, Ill.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Black-breasted Red pullet, R. R. Voris, Peoria, Ill.....	3 00
Second premium, Wesley Lanius, Greensburg, Ind.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Black-breasted Red pen, R. R. Voris, Peoria, Ill.....	5 00
Second premium, Wesley Lanius, Greensburg, Ind.....	3 00
Third premium, R. R. Voris, Peoria, Ill.....	2 00
Silver Duckwing cock, B. F. Duncan, Greenfield, Ind.....	1 00
Second premium, F. M. Meloy, Shelbyville, Ind.....	50
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Silver Duckwing hen, B. F. Duncan, Greenfield, Ind.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
Silver Duckwing cockerel, Wesley Lanius, Greensburg, Ind.....	1 00
Second premium, R. R. Voris, Peoria, Ill.....	50
Third premium, Wesley Lanius, Greensburg, Ind.....	Ribbon
Silver Duckwing pullet, R. R. Voris, Peoria, Ill.....	2 00
Second premium, R. R. Voris, Peoria, Ill.....	1 00

Third premium, B. F. Duncan, Greenfield, Ind.....	Ribbon
Silver Duckwing pen, B. F. Duncan, Greenfield, Ind.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	Ribbon
Red Pyle cock, R. R. Voris, Peoria, Ill.....	2 00
Second premium, Wesley Lanius, Greensburg, Ind.....	1 00
Third premium, Wesley Lanius, Greensburg, Ind.....	Ribbon
Red Pyle hen, R. R. Voris, Peoria, Ill.....	2 00
Second premium, R. R. Voris, Peoria, Ill.....	1 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	Ribbon
Red Pyle cockerel, R. R. Voris, Peoria, Ill.....	3 00
Second premium, R. R. Voris, Peoria, Ill.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Red Pyle pullet, R. R. Voris, Peoria, Ill.....	3 00
Second premium, R. R. Voris, Peoria, Ill.....	2 00
Third premium, R. R. Voris, Peoria, Ill.....	1 00
Red Pyle pen, R. R. Voris, Peoria, Ill.....	5 00
Second premium, R. R. Voris, Peoria, Ill.....	3 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	2 00

BANTAM OTHER THAN GAME.

Golden Seabright cock, Thos. M. Campbell, Darlington, Ind.....	3 00
Second premium, T. N. Smney & Son, Milligan, Ind.....	2 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	1 00
Golden Seabright hen, Thos. M. Campbell, Darlington, Ind.....	3 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	2 00
Third premium, Louis Seidensticker & Son, Brightwood, Ind.....	1 00
Golden Seabright cockerel, Thos. M. Campbell, Darlington, Ind....	3 00
Second premium, Bertle Doty, Charleston, Ill.....	2 00
Third premium, Louis Seidensticker & Son, Brightwood, Ind.....	1 00
Golden Seabright pullet, Thos. M. Campbell, Darlington, Ind.....	3 00
Second premium, Bertle Doty, Charleston, Ill.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Golden Seabright pen, Thos. M. Campbell, Darlington, Ind.....	5 00
Second premium, Bertle Doty, Charleston, Ill.....	3 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	2 00
Silver Seabright cock, Bertle Doty, Charleston, Ill.....	2 00
Second premium, Louis Seidensticker & Son, Brightwood, Ind....	1 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	Ribbon
Silver Seabright hen, Thos. M. Campbell, Darlington, Ind.....	2 00
Second premium, Mrs. R. W. Williams, Indianapolis.....	1 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
Silver Seabright cockerel, Thos. M. Campbell, Darlington, Ind....	2 00
Second premium, Bertle Doty, Charleston, Ill.....	1 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon

Silver Seabright pullet, Thos. M. Campbell, Darlington, Ind.....	2 00
Second premium, Bertle Doty, Charleston, Ill.....	1 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
Silver Seabright pen, Thos. M. Campbell, Darlington, Ind.....	3 00
Second premium, Bertle Doty, Charleston, Ill.....	2 00
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
R. C. B. African cock, Thos. M. Campbell, Darlington, Ind.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
Third premium, Bertle Doty, Charleston, Ill.....	Ribbon
R. C. B. African hen, Bertle Doty, Charleston, Ill.....	1 00
Second premium, Thos. M. Campbell, Darlington, Ind.....	50
Third premium, Thos. M. Campbell, Darlington, Ind.....	Ribbon
R. C. B. African cockerel, Thos. M. Campbell, Darlington, Ind.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
R. C. B. African pullet, Thos. M. Campbell, Darlington, Ind.....	1 00
Second premium, Bertle Doty, Charleston, Ill.....	50
R. C. B. African pen, Bertle Doty, Charleston, Ill.....	1 00
Buff Cochin cock, Mrs. W. A. Graffis, Logansport, Ind.....	3 00
Second premium, S. B. Lane, Spiceland, Ind.....	2 00
Third premium, Mrs. W. A. Graffis, Logansport, Ind.....	1 00
Buff Cochin hen, Mrs. W. A. Graffis, Logansport, Ind.....	3 00
Second premium, Mrs. W. A. Graffis, Logansport, Ind.....	2 00
Third premium, Frank R. Hale, Shelbyville, Ind.....	1 00
Buff Cochin cockerel, S. B. Lane, Spiceland, Ind.....	3 00
Second premium, Mrs. W. A. Graffis, Logansport, Ind.....	2 00
Third premium, Bertle Doty, Charleston, Ill.....	1 00
Buff Cochin pullet, Mrs. W. A. Graffis, Logansport, Ind.....	3 00
Second premium, S. B. Lane, Spiceland, Ind.....	2 00
Third premium, J. A. Horning	1 00
Buff Cochin pen, Mrs. W. A. Graffis, Logansport, Ind.....	5 00
Second premium, S. B. Lane, Spiceland, Ind.....	3 00
Third premium, Mrs. W. A. Graffis, Logansport, Ind.....	2 00

TURKEYS.

Bronze cock, U. R. Fishel, Hope, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, U. R. Fishel, Hope, Ind.....	1 00
Bronze hen, U. R. Fishel, Hope, Ind.....	3 00
Second premium, U. R. Fishel, Hope, Ind.....	2 00
Third premium	Ribbon
Bronze cockerel, U. R. Fishel, Hope, Ind.....	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.....	2 00
Third premium, U. R. Fishel, Hope, Ind.....	1 00
Bronze pullet, T. N. Smiley & Son, Milligan, Ind.....	3 00

Second premium, U. R. Fishel, Hope, Ind.	2 00
Third premium, J. S. Smiley & Son, Milligan, Ind.	1 00
White Holland cock, Gardner & Collins, Roachdale, Ind.	3 00
Second premium, J. S. Smiley & Son, Milligan, Ind.	2 00
Third premium, J. A. Horning.	1 00
White Holland hen, J. A. Horning.	3 00
Second premium, Gardner & Collins, Roachdale, Ind.	2 00
Third premium, J. S. Smiley & Son, Milligan, Ind.	1 00
White Holland cockerel, Lewis Frick, Loree, Ind.	3 00
Second premium, F. M. Meloy, Shelbyville, Ind.	2 00
Third premium, Gardner & Collins, Roachdale, Ind.	1 00
White Holland pullet, F. M. Meloy, Shelbyville, Ind.	3 00
Second premium, Lewis Frick, Loree, Ind.	2 30
Third premium, Gardner & Collins, Roachdale, Ind.	1 00

GEESE.

Pair Toulouse, old, C. E. & W. Smith, Ashley, Ohio.	3 00
Second premium, J. A. Horning.	2 00
Third premium, Warbritton Bros., Ladoga, Ind.	1 00
Pair Toulouse, young, T. N. Smiley & Son, Milligan, Ind.	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.	2 00
Pair Embden, old, T. N. Smiley & Son, Milligan, Ind.	3 00
Second premium, J. S. Smiley & Son, Milligan, Ind.	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.	1 00
Pair Embden, young, J. S. Smiley & Son, Milligan, Ind.	3 00
Second premium, T. N. Smiley & Son, Milligan, Ind.	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.	1 00
Pair Chinese, old, Mrs. R. W. Williams, Indianapolis.	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.	1 00
Pair Chinese, young, Mrs. R. W. Williams, Indianapolis.	3 00
Second premium, J. A. Horning.	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.	1 00

DUCKS.

Pair Pekin, old, Dr. E. E. Heady, Kokomo, Ind.	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.	2 00
Third premium, Dr. E. E. Heady, Kokomo, Ind.	1 00
Pair Pekin, young, Dr. E. E. Heady, Kokomo, Ind.	3 00
Second premium, B. Howard Whitcomb, Terre Haute, Ind.	2 00
Third premium, Dr. E. E. Heady, Kokomo, Ind.	1 00
Pair Aylesbury, old, T. N. Smiley & Son, Milligan, Ind.	3 00
Second premium, Thos. M. Campbell, Darlington, Ind.	2 00
Pair Aylesbury, young, C. E. & W. Smith, Ashley, Ohio.	3 00

Second premium, Thos. M. Campbell, Darlington, Ind.....	2 00
Third premium, T. N. Smiley & Son, Milligan, Ind.....	1 00
Pair Rouen, old, J. S. Smiley & Son, Milligan, Ind.....	3 00
Second premium, C. E. & W. Smith, Ashley, Ohio.....	2 00
Third premium, C. E. & W. Smith, Ashley, Ohio.....	1 00
Pair Rouen, young, C. E. & W. Smith, Ashley, Ohio.....	3 00
Second premium, J. A. Horning.....	2 00
Third premium, Mrs. R. W. Williams, Indianapolis.....	1 00

PIGEONS.

Best display, ten varieties, Geo. Ewald, Cincinnati, Ohio.....	10 00
Second premium, Geo. Ewald, Cincinnati, Ohio.....	5 00

 AGRICULTURE.

CLASS L—Grain and Seeds.

(U. M. Stewart, Judge, Madison, Ind.)

PURE-BRED CORN.

Leaming, L. B. Clore, Franklin, Ind.....	\$4 00
Second premium, L. B. Clore, Franklin, Ind.....	3 00
Third premium, L. B. Clore, Franklin, Ind.....	2 00
Boone County White, Joe R. Overstreet, Franklin, Ind.....	4 00
Second premium, J. J. Whitesides, Franklin, Ind.....	3 00
Third premium, L. B. Clore, Franklin, Ind.....	2 00
Riley's Favorite, Harry Bennett, Franklin, Ind.....	4 00
Second premium, L. B. Clore, Franklin, Ind.....	3 00
Third premium, L. B. Clore, Franklin, Ind.....	2 00
Johnson County White Dent, L. B. Clore, Franklin, Ind.....	4 00
Second premium, C. A. Brown, Franklin, Ind.....	3 00
Third premium, J. J. Whitesides, Franklin, Ind.....	2 00
Twenty ears yellow corn, L. B. Clore, Franklin, Ind.....	10 00
Second premium, L. B. Clore, Franklin, Ind.....	7 50
Third premium, Harry Bennett, Franklin, Ind.....	5 00

Fourth premium, C. A. Brown, Franklin, Ind.....	2 50
Twenty ears white corn, Joe R. Overstreet, Franklin, Ind.....	10 00
Second premium, L. B. Clore, Franklin, Ind.....	7 50
Third premium, C. A. Brown, Franklin, Ind.....	5 00
Fourth premium, J. J. Whitesides, Franklin, Ind.....	2 50
Twenty ears any other variety, J. J. Whitesides, Franklin, Ind....	10 00
Second premium, Lunis Sanford, Greenfield, Ind.....	7 50
Third premium, J. J. Whitesides, Franklin, Ind.....	5 00
Fourth premium, F. M. Sanford, Greenfield, Ind.....	2 50
Twenty ears white flint corn, Joe R. Overstreet, Franklin, Ind....	3 00
Second premium, J. L. Keckley, Marysville, Ohio.....	2 00
Third premium, J. R. Overstreet, Franklin, Ind.....	1 00
One peck white rice popcorn, Harry Bennett, Franklin, Ind.....	3 00
Second premium, J. J. Whitesides, Franklin, Ind.....	2 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
One peck golden popcorn, Geo. M. Rumler, Mohawk, Ind.....	3 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	2 00
Third premium, F. M. Sanford, Greenfield, Ind.....	1 00
One peck any other variety, Geo. M. Rumler, Mohawk, Ind.....	3 00
Second premium, Whipps Bros., Marion, Ohio.....	2 00
Third premium, J. J. Whitesides, Franklin, Ind.....	1 00
Six largest ears, any variety, L. B. Clore, Franklin, Ind.....	5 00
Second premium, J. E. Kellar, Circleville, Ind.....	2 50
Six most perfect ears of corn, L. B. Clore, Franklin, Ind.....	5 00
Second premium, L. B. Clore, Franklin, Ind.....	2 50
Best and most meritorious display of corn, Clore & Overstreet, Franklin, Ind.	80 00
Second premium, Clore & Overstreet, Franklin, Ind.....	60 00
Third premium, Clore & Overstreet, Franklin, Ind.....	40 00
Best one-half bushel white winter wheat, J. L. Keckley, Marys- ville, Ohio	4 00
Second premium, J. L. Keckley, Marysville, Ohio.....	2 00
Best one-half bushel red winter wheat, J. L. Keckley, Marysville, Ohio,	4 00
Second premium, J. L. Keckley, Marysville, Ohio.....	2 00
Best one-half bushel Fultz wheat, J. L. Keckley, Marysville, Ohio.	4 00
Second premium, J. L. Keckley, Marysville, Ohio.....	2 00
Best one-half bushel red spring wheat, J. L. Keckley, Marysville, Ohio	4 00
Second premium, Whipps, Bros., Marion, Ohio.....	2 00
Best display of grain in the straw, J. L. Keckley, Marysville, Ohio.	10 00
Second premium, Whipps Bros., Marion, Ohio.....	5 00
Best display of meadow and pasture grasses, J. L. Keckley, Marys- ville, Ohio	8 00
Second premium, Whipps, Bros., Marion, Ohio.....	4 00

One-half bushel rye, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
One-half bushel white oats, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
One-half bushel black oats, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
One-half bushel silver hull buckwheat, J. L. Keckley, Marysville, Ohio	2 00
One-half bushel barley, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, W. E. Rockhill, Etna Green, Ind.....	1 00
One-half bushel millet seed, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
One-half bushel Timothy seed, J. L. Keckley, Marysville, Ohio....	2 00
Second premium, W. E. Rockhill, Etna, Green, Ind.....	1 00
One-half bushel orchard grass seed, J. L. Keckley, Marysville, Ohio	2 00
Second premium, W. E. Rockhill, Etna Green, Ind.....	1 00
One-half bushel Hungarian grass seed, J. L. Keckley, Marysville, Ohio	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
One-half bushel Kentucky blue grass seed, J. L. Keckley, Marys- ville, Ohio	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
One-half bushel mammoth clover seed, Geo. M. Rumler, Mohawk, Ind.	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
One-half bushel red clover seed, J. J. Whitesides, Franklin, Ind....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
One-half bushel flaxseed, Geo. M. Rumler, Mohawk, Ind.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Best collection of grain and seed grown by exhibitor, seed of 1902, Geo. M. Rumler, Mohawk, Ind.....	10 00
Second premium, J. L. Keckley, Marysville, Ohio.....	5 00
Best display and collection by any county or society in Indiana, John Marvel, Royaltion, Ind.....	60 00
Second premium, J. J. Whitesides, Franklin, Ind.....	30 00

CLASS LI—Vegetables.

(U. M. Stewart, Judge, Madison, Ind.)

Three white egg plant, Martha Luking, Bicknell, Ind.....	2 00
Second premium, B. F. Whaley, Shelbyville, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Three New York purple egg plant, B. F. Whaley, Shelbyville, Ind..	2 00

Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Twelve best cucumbers, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, L. K. Roney, Troy, Ohio.....	50
Twelve ears late sweet corn, John Marvel, Royalton, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Twelve ears early sweet corn, Geo. M. Rumler, Mohawk, Ind.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Three Hubbard squash, Whipps Bros., Marion, Ohio.....	2 00
Second premium, J. J. Keckley, Marysville, Ohio.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Three Boston marrow squash, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, R. Waincott, New Carlisle, Ind.....	50
Three Marblehead squash, Whipps Bros., Marion, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Three Red Hubbard squash, R. Waincott, New Carlisle, Ind.....	2 00
Three Kershaw squash, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, R. Waincott, New Carlisle, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Three summer crooked neck squash, Whipps Bros., Marion, Ohio.....	2 00
Second premium, R. Waincott, New Carlisle, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Three field pumpkins, Warren W. Trout, Greenwood, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Warren W. Trout, Greenwood, Ind.....	50
Largest squash, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Largest pumpkin, Warren W. Trout, Greenwood, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Six Drumhead cabbage, Whipps Bros., Marion, Ohio.....	2 00
Second premium, S. I. Martin, Muncie, Ind.....	1 00
Third premium, B. F. Whaley, Shelbyville, Ind.....	50
Six flat Dutch cabbage, Whipps Bros., Marion, Ohio.....	2 00
Second premium, S. I. Martin, Muncie, Ind.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Six early cabbage, S. I. Martin, Muncie, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, R. Waincott, New Carlisle, Ind.....	50
Six red cabbage, Whipps Bros., Marion, Ohio.....	2 00

Second premium, S. I. Martin, Muncie, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Twelve stalks celery, Whipps Bros., Marion, Ohio.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Best display of celery, John Marvel, Royalton, Ind.....	3 00
One-half peck Lima beans, germ shell, John Marvel, Royalton, Ind.	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
One-half peck white Marrowfat beans, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
One-half peck White Navy beans, J. L. Keckley, Marysville, Ohio.	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
One-half peck colored kidney beans, Geo. M. Rumler, Mohawk, Ind.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
Third premium, Harry Bennett, Franklin, Ind.....	50
One-half peck garden peas, dry, Whipps Bros., Marion, Ohio....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, J. L. Keckley, Marysville, Ohio.....	50
Best peck purple tomatoes, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Best peck red tomatoes, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, Evan Swift, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Best peck yellow tomatoes, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, Whipps Bros. Marion, Ohio.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Collection of tomatoes, ten varieties, John Marvel, Royalton, Ind.	3 00
Second premium, B. F. Whaley, Shelbyville, Ind.....	2 00
Third premium, S. I. Martin, Muncie, Ind.....	1 00
Six largest and best nutmeg melons, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Six largest and best Gypsy watermelons, Whipps Bros., Marion, Ohio.....	2 00
Six largest and best Sweet Hart melons, Whipps Bros., Marion, Ohio.....	2 00
Display musk melons, not less than six varieties, Whipps Bros., Marion, Ohio	5 00

Largest and best collection of vegetables, John Marvel, Royalton, Ind.....	15 00
Second premium, J. L. Keckley, Marysville, Ohio.....	10 00
Third premium, Harry Bennett, Franklin, Ind.....	5 00
Peck of peppers for pickling, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, R. Wainescott, New Carlisle, Ind.....	50
Display of peppers, B. F. Whaley, Shelbyville, Ind.....	2 00
Second premium, Lunis Sanford, Greenfield, Ind.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50

CLASS LII—Root Crop.

(U. M. Stewart, Judge, Madison, Ind.)

Six purple top turnips, Whipps Bros., Marion, Ohio.....	\$2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Six any other variety turnips, Lunis Sanford, Greenfield, Ind....	2 00
Second premium, Lunis Sanford, Greenfield, Ind.....	1 00
Six carrots for table, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, R. Wainescott, New Carlisle, Ind.....	1 00
Third premium, S. I. Martin, Muncie, Ind.....	50
Six carrots for stock, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, S. I. Martin, Muncie, Ind.....	1 00
Third premium, Geo. M. Runder, Mohawk, Ind.....	50
Six roots salsify, John Marvel, Royalton, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, J. L. Keckley, Marysville, Ohio.....	50
Six roots horseradish, John Marvel, Royalton, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Lunis Sanford, Greenfield, Ind.....	50
Six long red table beets, Whipps Bros., Marion, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Six turnip beets, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, Harry Bennett, Franklin, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Six sugar beets, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Six red Mangelwurzel, S. I. Martin, Muncie, Ind.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Six parsnips, Whipps Bros., Marion, Ohio.....	2 00

Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Six turnip radish, same kind, J. J. Whitesides, Franklin, Ind....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Six winter radish, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Six long summer radishes, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Peck Prize-taker onions, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck Yellow Globe onions, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Peck White Globe onions, Whipps Bros., Marion, Ohio.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Half peck yellow onion sets, John Marvel, Royalton, Ind.....	2 00
Second premium, R. Waincott, New Carlisle, Ind.....	1 00
Half peck red onion sets, Harry Bennett, Franklin, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Half peck white onion sets, John Marvel, Royalton, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, R. Waincott, New Carlisle, Ind.....	50
Broom corn, John Marvel, Royalton, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Potato onions, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Martha Luking, Bicknell, Ind.....	50
Yellow Danvers onions, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Third premium, R. Waincott, New Carlisle, Ind.....	50
Red Weatherfield onions, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Display of onions, all varieties, J. L. Keckley, Marysville, Ohio...	5 00
Second premium, Whipps Bros., Marion, Ohio.....	3 00
Largest and best display of root crops, all varieties, John Marvel, Royalton, Ind.	5 00
Second premium, J. J. Whitesides, Franklin, Ind.....	3 00

CLASS LIII—Potatoes.

(U. M. Stewart, Judge, Madison, Ind.)

Peck Early Rose, J. L. Keckley, Marysville, Ohio.....	\$2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck Early Ohio, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Harry Bennett, Franklin, Ind.....	1 00
Third premium, J. L. Keckley, Marysville, Ohio.....	50
Peck Bliss Triumph, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck Uncle Sam, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck White Rose, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Peck White Elephant, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Peck Beauty Hebron, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, F. M. Sanford, Greenfield, Ind.....	1 00
Third premium, Lunis Sanford, Greenfield, Ind.....	50
Peck Rural New Yorker No. 2, Whipps Bros., Marion, Ohio.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck Queen of the West, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
Third premium, John Marvel, Royalton, Ind.....	50
Peck Empire State, Whipps Bros., Marion, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, J. L. Keckley, Marysville, Ohio.....	50
Peck Green Mountain, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Peck Early Puritan, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Peck Early Harvest, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, J. J. Whitesides, Franklin, Ind.....	1 00
Third premium, Whipps Bros., Marion, Ohio.....	50
Peck Burbank Seedling, J. J. Whitesides, Franklin, Ind.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50

Peck Bovee, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Peck Duchess, J. L. Keckley, Marysville, Ohio.....	2 00
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Third premium, J. J. Whitesides, Franklin, Ind.....	50
Largest and best collection of potatoes, Whipps Bros., Marion, Ohio.....	8 00
Second premium, J. L. Keckley, Marion, Ohio.....	4 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	2 00
Yellow sweet potatoes, Geo. M. Rumler, Mohawk, Ind.....	2 00
Second premium, J. L. Keckley, Marysville, Ohio.....	1 00
Third premium, Geo. M. Rumler, Mohawk, Ind.....	50
Peck red sweet potatoes, Martha Luking, Bicknell, Ind.....	2 00
Second premium, S. I. Martin, Muncie, Ind.....	1 00
Third premium, F. M. Sanford, Greenfield, Ind.....	50
Display of sweet potatoes, Whipps Bros., Marion, Ohio.....	3 00
Second premium, F. M. Sanford, Greenfield, Ind.....	3 00
Third premium, R. Wainscott, New Carlisle, Ind.....	1 00

HORTICULTURE.

CLASS LIV—Apples. Collections.

Fifteen varieties for home use, Mrs. D. K. Hitchcock, Brimfield, Ind.....	\$15 00
Second premium, J. Y. Demaree, Morgantown, Ind.....	10 00
Ten varieties for market, Mrs. D. K. Hitchcock, Brimfield, Ind...	10 00
Second premium, Reed & Fielding, Glenwood, Ind.....	6 00
Five varieties for culinary purposes, Reed & Fielding, Glenwood, Ind.....	5 00
Second premium, H. M. Stout, Trafalgar, Ind.....	3 00
Plate Maiden Blush, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Smith Cider, H. M. Stout, Trafalgar, Ind.....	1 50
Second premium, Evan B. Davis, Cartersburg, Ind.....	1 00
Plate Ben Davis, H. J. Hale, Indianapolis.....	1 50
Second premium, Evan B. Swift, Franklin, Ind.....	1 00
Plate Rome Beauty, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Winesap, W. H. Vance, Springport, Ind.....	1 50

Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Rambo, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, J. J. Vance, Springport, Ind.....	1 00
Plate Yellow Bellflower, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Fallawater, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Fall Pippin, L. Eshelman, Woodruff, Ind.....	1 50
Second premium, W. H. Vance, Springport, Ind.....	1 00
Plate Willow Twig, Wm. D. Thomas, Connersville, Ind.....	1 50
Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Westfield (Seek-No-Further), Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Wagner, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Mrs. D. K. Hitchcock, Brimfield, Ind.....	1 00
Plate Gravenstein, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, H. M. Stout, Trafalgar, Ind.....	1 00
Plate Beitigheimer, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Plate Femeuse or Snow, Mrs. D. K. Hitchcock, Brimfield, Ind....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Moore's Sweet, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, W. H. Vance, Springport, Ind.....	1 00
Plate Tompkins King, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00
Plate Hubbardston, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Red Canada, H. M. Stout, Trafalgar, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Rhode Island Greening, H. M. Swain, South Bend, Ind.....	1 50
Second premium, Geo. M. Rumler, Mohawk, Ind.....	1 00
Plate Fall Wine, J. J. Vance, Springport, Ind.....	1 50
Second premium, W. H. Vance, Springport, Ind.....	1 00
Plate Duchess, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Wolf River, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00
Plate Clayton, W. B. Flick, Lawrence, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate White Pippin, Mrs. D. K. Hitchcock, Brimfield, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00
Plate Baldwin, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Whipps Bros., Marion, Ohio.....	1 00
Plate York Imperial, Evan Swift, Franklin, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00

Plate Northern Spy, Evan Swift, Franklin, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Grimes Golden, Evan B. Davis, Cartersburg, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Roman Stem, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Indiana Favorite, Wm. D. Thomas, Connersville, Ind.....	1 50
Second premium, H. M. Stout, Trafalgar, Ind.....	1 00
Plate Belmont, J. C. Crossman, Wolcottville, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00
Plate Jonathan, Evan Swift, Franklin, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Lansingburg, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, J. J. Vance, Springport, Ind.....	1 00
Plate Talman Sweet, J. J. Vance, Springport, Ind.....	1 50
Second premium, W. H. Vance, Springport, Ind.....	1 00
Plate Vandevere, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Evan Swift, Franklin, Ind.....	1 00
Plate Twenty Ounce, L. Eshelman, Woodruff, Ind.....	1 50
Plate Rall's Genet, W. B. Flick, Lawrence, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Wealthy, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Stark, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, Reed & Fielding, Glenwood, Ind.....	1 00
Plate Pewaukee, Perry Leclair, Shelbyville, Ind.....	1 50
Second premium, Evan B. Davis, Cartersburg, Ind.....	1 00
Plate English Russet, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00
Plate Mann, H. M. Stout, Trafalgar, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Lawrence, L. Eshelman, Woodruff, Ind.....	1 50
Plate Missouri Pippin, Reed & Fielding, Glenwood, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Gano, W. H. Vance, Springport, Ind.....	1 50
Second premium, J. J. Vance, Springport, Ind.....	1 00
Plate Sutton Beauty, J. J. Vance, Springport, Ind.....	1 50
Plate Newton, Spitzenberg, Reed & Fielding, Glenwood, Ind.....	1 50
Plate largest, any kind, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, L. Eshelman, Woodruff, Ind.....	1 00

CRAB APPLES.

Plate Hyslop, Jas. M. Zion, Clarks Hill, Ind.....	1 00
Second premium, W. B. Flick, Lawrence, Ind.....	50
Plate Red Siberian, Jas. M. Zion, Clarks Hill, Ind.....	1 00

Plate Transcendent, W. B. Flick, Lawrence, Ind.....	1 00
Plate Whitney, C. P. Bradley, South Bend, Ind.....	1 00
Kentucky Red Cider, J. Y. Demaree, Morgantown, Ind.....	1 00
Five varieties crabapples, Evan Swift, Franklin, Ind.....	2 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind.....	1 00

PEARS.

Plate Bartlett, Mrs. D. K. Hitchcock, Brimfield, Ind.....	1 50
Second premium, W. B. Flick, Lawrence, Ind.....	1 00
Plate Anjou, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Wm. D. Thomas, Connersville, Ind.....	1 00
Plate Angouleme (Duchess), H. H. Swaim, South Bend, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Flemish Beauty, W. B. Flick, Lawrence, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Howell, H. H. Swaim, South Bend, Ind.....	1 50
Plate Kieffer, J. F. Elliott, Vincennes, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Louis Bon, H. H. Swaim, South Bend, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Sheldon, Mrs. D. K. Hitchcock, Brimfield, Ind.....	1 50
Second premium, J. C. Grossman, Wolcottville, Ind.....	1 00
Plate Seckel, H. M. Stout, Trafalgar, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Easter Bourre	
Plate Lawrence, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, H. H. Swaim, South Bend, Ind.....	1 00
Plate Winter Nelis, Jas. M. Zion, Clarks Hill, Ind.....	1 50
Second premium, Evan Swift, Franklin, Ind.....	1 00
Plate Vickar, J. C. Grossman, Wolcottville, Ind.....	1 50
Second premium, Mrs. D. K. Hitchcock, Brimfield, Ind.....	1 00
Plate Ononda, H. H. Swaim, South Bend, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Garber, J. F. Elliott, Vincennes, Ind.....	1 00
Second premium, H. M. Stout, Trafalgar, Ind.....	75
Plate Boussock, Mrs. W. B. Flick, Lawrence, Ind.....	1 00
Second premium, W. B. Flick, Lawrence, Ind.....	75
Plate Clairgean, H. H. Swaim, South Bend, Ind.....	1 00
Second premium, J. C. Grossman, Wolcottville, Ind.....	75
Plate Vermont Beauty, Margaret A. Gregg, Greenwood, Ind.....	1 00
Second premium, J. J. Vance, Springport, Ind.....	75
Plate Worden Seckel, J. J. Vance, Springport, Ind.....	1 00
Plate Idaho, W. B. Flick, Lawrence, Ind.....	1 00
Second premium, J. Y. Demaree, Morgantown, Ind.....	75

Five varieties for family use, Evan Swift, Franklin, Ind.....	3 00
Second premium, W. H. Vance, Springport, Ind.....	1 50
Five varieties for market use, H. M. Stout, Trafalgar, Ind.....	3 00
Second premium, C. P. Bradley, South Bend, Ind.....	1 50

SINGLE PLATES.

Plate Free Stones, J. C. Grossman, Wolcottville, Ind.....	1 50
Plate Seedlings, not exhibited before, J. C. Grossman, Wolcottville, Ind.....	1 50

QUINCES—COLLECTIONS.

Best collection, not less than three varieties, Mrs. W. B. Flick, Lawrence, Ind.....	3 00
Second premium, C. P. Bradley, South Bend, Ind.....	1 50

SINGLE PLATES.

Plate Meeche's Prolific, W. B. Flick, Lawrence, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00
Plate Orange quince, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, Evan Swift, Franklin, Ind.....	1 00
Plate Champion, J. Y. Demaree, Morgantown, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Missouri Mammoth, Evan Swift, Franklin, Ind.....	1 50
Second premium, J. Y. Demaree, Morgantown, Ind.....	1 00

PLUMS—COLLECTIONS.

Best collection native plums, J. J. Vance, Springport, Ind.....	2 00
Second premium, John Marvel, Royalton, Ind.....	1 00
Best collection of plums, European class.....	

GRAPES—GROWN IN OPEN AIR.

Five clusters, any kind, Sylvester Johnson, Irvington, Ind.....	2 00
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Best collection grown by exhibitor, H. H. Swaim, South Bend, Ind. (second premium)	5 00
Plate Worden, Jennie H. Droke, Gadaulet, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Concord, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Jennie H. Droke, Gadaulet, Ind.....	1 00
Plate Wilder, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Duchess, C. P. Bradley, South Bend, Ind.....	1 50

Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Brighton, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Salem, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Lindley, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Pocklington, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, J. J. Vance, Springport, Ind.....	1 00
Plate Niagara, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Diamond, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, C. P. Bradley, South Bend.....	1 00
Plate Vergennes, Sylvester Johnson, Irvington, Ind.....	1 50
Plate McPike, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Delaware, Jennie H. Droke, Gadauliet, Ind.....	1 50
Second premium, H. H. Swaim, South Bend, Ind.....	1 00
Plate Agawan, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Catawba, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, H. H. Swaim, South Bend, Ind.....	1 00
Plate Poughkeepsie Red, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Ulster Prolific, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Moore's Early, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, C. P. Bradley, South Bend, Ind.....	1 00
Plate Ives, C. P. Bradley, South Bend, Ind.....	1 50
Second premium, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Carman, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Mills, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Aminia, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Woodruff Red, Sylvester Johnson, Irvington, Ind.....	1 50
Second premium, Jennie H. Droke, Gadauliet, Ind.....	1 00
Plate Johnson, Sylvester Johnson, Irvington, Ind.....	1 00
Plate Green Mountain, Sylvester Johnson, Irvington, Ind.....	1 50
Plate Empire State, C. P. Bradley, South Bend, Ind.....	1 50
Plate hot-house grapes, Sylvester Johnson, Irvington, Ind.....	1 50
Plate seedlings, not named, Sylvester Johnson, Irvington, Ind....	1 50

MISCELLANEOUS.

Plate persimmons, Evan Swift, Franklin, Ind.....	1 00
Second premium, H. M. Stout, Trafalgar, Ind.....	50
Plate pawpaws, Evan B. Davis, Cartersburg, Ind.....	1 00
Second premium, J. J. Van Winkle, Mechanicsburg, Ind.....	50
Collection of native nuts, Evan Swift, Franklin, Ind.....	1 00

Second premium, H. H. Swaim, South Bend, Ind.....	50
Best and most artistic display of fruits by Indiana county society, Mrs. J. W. Kring, South Bend, Ind.....	50 00
Second premium, Lagrange County Agricultural and Horticultural Society, Woodruff, Ind.....	40 00
Third premium, Mrs. D. K. Hitchcock, Brimfield, Ind.....	30 00
Fourth premium, Evan Swift, South Bend, Ind.....	20 00
Best and most artistic display of fruits grown and exhibited by one individual in Indiana, H. H. Swaim, South Bend, Ind....	25 00
Second premium, W. B. Flick, Lawrence, Ind.....	15 00

FLOWERS.

CLASS LV—Plants.

(Geo. C. Stelhorn, Judge, Indianapolis, Ind.)

Ten blooming begonias, Bauer & Smith, Indianapolis.....	\$6 00
Ten foliage begonias, Bauer & Smith, Indianapolis.....	7 00
Two vases filled, either iron, rustic or wire, Bauer & Smith, Indian- apolis	8 00
Two specimens Boston ferns, Bauer & Smith, Indianapolis.....	5 00

SPECIAL.

Display of show plants, Bauer & Smith, Indianapolis.....	35 00
Two floral arrangements, John Rieman, Indianapolis.....	25 00
Two baskets, John Rieman, Indianapolis.....	15 00
Second premium, E. A. Nelson, Indianapolis.....	10 00
Collection of cut roses, W. W. Coles, Kokomo, Ind.....	10 00
Second premium, E. A. Nelson, Indianapolis.....	6 00
Collection of cut flowers, E. A. Nelson, Indianapolis.....	15 00
Second premium, W. W. Coles, Kokomo, Ind.....	10 00
Collection of dahlias, H. F. Burt, Taunton, Mass.....	5 00
Second premium, W. W. Coles, Kokomo, Ind.....	3 00
Collection cut gladioli, Chas. K. Henderson.....	15 00
Second premium, W. W. Coles, Kokomo, Ind.....	10 00
Third premium, E. A. Nelson, Indianapolis.....	5 00
Original show arrangement of flowers, John Rieman, Indianapolis.	50 00
Second premium, E. A. Nelson, Indianapolis.....	35 00
Three bouquets, John Rieman, Indianapolis.....	12 00
Second premium, E. A. Nelson, Indianapolis.....	8 00

CLASS LVI—Amateur.

Collection foliage plants, Mrs. W. B. Flick, Lawrence, Ind.....	3 00
Collection climbing and trailing plants, Mrs. W. B. Flick, Lawrence, Ind.	3 00

CUT FLOWERS.

Collection geraniums, Mrs. Art. Edmonds.....	3 00
Collection cut flowers, Mrs. W. B. Flick, Lawrence, Ind.....	4 00
Second premium, Mrs. Art Edmonds.....	2 00
Collection verbenas, Mrs. P. D. Stagg, Greensburg, Ind.....	3 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind.....	2 00
Collection dahlias, Chas. K. Henderson, Indianapolis.....	3 00
Second premium, Mrs. Art Edmonds.....	2 00
Collection gladiolas, Mrs. W. B. Flick, Lawrence, Ind.....	3 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	2 00
Collectionn cannas, Chas. K. Henderson, Indianapolis.....	3 00
Second premium, Mrs. Art Edmonds.....	2 00
Twelve carnations, Mrs. Art Edmonds.....	3 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	2 00
Two bouquets of garden flowers, Mrs. Art Edmonds.....	4 00
Second premium, Nellie Leeson, Indianapolis.....	2 00

CLASS LVII—Bees and Honey.

(John Marvel, Judge, Royalton, Ind.)

Specimen comb honey, Geo. M. Rumler, Mohawk, Ind.....	\$12 00
Second premium, Chas. Kingen, Mohawk, Ind.....	6 00
Extracted honey, Geo. Rumler, Mohawk, Ind.....	12 00
Second premium, Chas. Kingen, Mohawk, Ind.....	6 00
Beeswax, Geo. Rumler, Mohawk, Ind.....	2 00
Second premium, Chas. Kingen, Mohawk, Ind.....	1 00
Italian bees, Geo. Rumler, Mohawk, Ind.....	5 00
Second premium, Chas. Kingen, Mohawk, Ind.....	3 00
Italian queen bee, Geo. Rumler, Mohawk, Ind.....	5 00
Second premium, Chas. Kingen, Mohawk, Ind.....	3 00
Honey vinegar, one gallon, Geo. Rumler, Mohawk, Ind.....	2 00
Second premium, Chas. Kingen, Mohawk, Ind.....	1 00
Aparian supplies, best collection, Geo. Rumler, Mohawk, Ind.....	10 00
Second premium, Chas. Kingen, Mohawk, Ind.....	5 00
Display of honey, the product of one apiary, Geo. Rumler, Mohawk, Ind.	15 00
Second premium, Chas. Kingen, Mohawk, Ind.....	8 00

CLASS LVIII—Tables Luxuries.

(Miss Jessie Eberhardt, Judge, Indianapolis, Ind.)

Home-made cheese, Mrs. W. A. Ford, Indianapolis.....	\$1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Fancy cheese, Mrs. W. A. Ford, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Maple syrup, in most marketable shape, J. J. Van Winkle, Mechanicsburg, Ind.	2 00
Second premium, Jennie H. Droke, Gadaulet, Ind.....	1 00
Maple sugar, Mrs. E. B. Bryson, Indianapolis.....	2 00
Second premium, Martha Luking, Bicknell, Ind.....	1 00
Bread, wheat, yeast, Roxie Hatton, Indianapolis.....	1 50
Second premium, Mrs. J. M. Smock, Southport, Ind.....	75
Bread, wheat, salt rising, Mrs. R. L. Hurlbert, Malott Park, Ind..	1 50
Second premium, A. J. Voris, Indianapolis.....	75
Graham bread, yeast, Miss L. Hollingsworth, Indianapolis.....	1 50
Second premium, Roxie Hatton, Indianapolis.....	75
Boston brown bread, Mrs. J. B. Powers, Indianapolis.....	1 50
Second premium, Mrs. Jennie E. Cobb, Indianapolis.....	75
Rusk, Mrs. I. M. Porter, Indianapolis.....	1 50
Second premium, Mrs. R. L. Hurlbert, Malott Park, Ind.....	75
Corn gems, Elinor B. Ford, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Dozen rolls, Mrs. Jennie E. Cobb, Indianapolis.....	1 50
Second premium, Mrs. Frank C. Wood, Indianapolis.....	75
Ginger bread, Mrs. Nancy Grose, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Ginger cookies, A. J. Voris, Indianapolis.....	1 00
Second premium, Mrs. W. A. Ford, Indianapolis.....	50
Fig cake, Mrs. W. A. Ford, Indianapolis.....	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind.....	75
Layer cake, caramel, orange, Mrs. Jerome Dunlap, Lafayette, Ind.	1 50
Second premium, Alice V. Hatton, Indianapolis.....	75
Layer cake, caramel, chocolate, Mrs. J. M. Smock, Southport, Ind.	1 50
Second premium, Mrs. Jerome Dunlap, Lafayette, Ind.....	75
Marble loaf cake, Mrs. J. M. Smock, Southport, Ind.....	1 50
Second premium, Mrs. Frank Stewart, Indianapolis.....	75
White Mountain cake, Miss L. Hollingsworth, Indianapolis.....	1 50
Second premium, Geo. W. Francis, Darlington, Ind.....	75
Cocanut cake, Mrs. V. L. Wilson, Connerville, Ind.....	1 50
Second premium, Mrs. J. M. Smock, Southport, Ind.....	75
Sunshine cake, Mrs. J. M. Smock, Southport, Ind.....	1 50
Second premium, Mrs. I. M. Porter, Indianapolis.....	75

Angel's food, Mrs. Jerome Dunlap, Lafayette, Ind.....	1 50
Second premium, Margaret A. Gregg, Greenwood, Ind.....	75
Hickory nut loaf cake, Mrs. Frank C. Stewart, Indianapolis....	1 50
Second premium, Margaret A. Gregg, Greenwood, Ind.....	75
Hickory nut layer cake, Mrs. Jerome Dunlap, Lafayette, Ind....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Fruit cake, Mrs. Frank G. Wood, Indianapolis.....	3 00
Second premium, Mrs. I. M. Porter, Indianapolis.....	2 00
White fruit cake, Mrs. Geo. W. Francis, Darlington, Ind.....	1 50
Second premium, Mrs. J. M. Smock, Southport, Ind.....	75
White cake, Alice V. Hatton, Indianapolis.....	1 50
Second premium, Mrs. E. B. Bryson, Indianapolis.....	75
Chocolate cake, layer, Alice V. Hatton, Indianapolis.....	1 50
Second premium, Mrs. E. B. Bryson, Indianapolis.....	75
Chocolate cake, loaf, Mrs. Jerome Dunlap, Lafayette, Ind.....	1 50
Crullers, Mrs. W. A. Ford, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Cream puff, Mrs. J. B. Powers, Indianapolis.....	1 50
Second premium, Mrs. E. B. Bryson, Indianapolis.....	75
Cookies, Mrs. J. B. Powers, Indianapolis.....	1 50
Second premium, Mrs. Bettie Clore, Bargsersville, Ind.....	75
Kisses, Miss L. Hollingsworth, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Maringues, Miss L. Hollingsworth, Indianapolis.....	1 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	75
Cheese straws, Mrs. J. B. Powers, Indianapolis.....	1 00
Second premium, Miss L. Hollingsworth, Indianapolis.....	50
Apple pie, Mrs. Frank C. Stewart, Indianapolis.....	1 00
Second premium, Mrs. J. B. Powers, Indianapolis.....	50
Peach pie, Mrs. Jennie H. Droke, Gadaullett, Ind.....	1 00
Second premium, Elinor B. Ford, Indianapolis.....	50
Lemon pie, Alice V. Hatton, Indianapolis.....	1 00
Second premium, Mrs. J. B. Powers, Indianapolis.....	50
Sugar pie, Miss L. Hollingsworth, Indianapolis.....	1 00
Second premium, Mrs. Jennie H. Droke, Gadaullett, Ind.....	50
Pumpkin pie, Mrs. W. A. Ford, Indianapolis.....	1 00
Second premium, Mrs. Jennie H. Droke, Gadaullett, Ind.....	50
Cherry pie, Mrs. J. B. Powers, Indianapolis.....	1 00
Second premium, Mrs. Frank C. Stewart, Indianapolis.....	50
Plum pie, Miss L. Hollingsworth, Indianapolis.....	1 00
Second premium, Mrs. Jennie H. Droke, Gadaullett, Ind.....	50
Saratoga chips, Mrs. W. A. Ford, Indianapolis.....	1 00
Second premium, Mrs. W. B. Flick, Lawrence, Ind.....	50
Spiced peaches, Mrs. Nancy Grose, Indianapolis.....	1 00
Second premium, Mrs. Bettie Clore, Bargsersville, Ind.....	50

Spiced pears, Mrs. Frank G. Wood, Indianapolis.....	1 00
Second premium, Mrs. Bettie Clore, Bargersville, Ind.....	50
Spiced cherries, Mrs. J. B. Powers, Indianapolis.....	1 00
Second premium, Mrs. Bettie Clore, Bargersville, Ind.....	50
Sweet pickles, collection, Mrs. Nancy Grose, Indianapolis.....	4 00
Second premium, Mrs. Bettie Clore, Bargersville, Ind.....	2 00
Pickles, mixed, Mrs. W. A. Ford, Indianapolis.....	1 50
Second premium, Jennie H. Droke, Gadauliet, Ind.....	75
Pickles, cucumber, Mrs. Geo. W. Hilligoss, Shelbyville, Ind.....	1 50
Second premium, Mrs. W. B. Flick, Lawrence, Ind.....	75
Peach pickles, Mrs. Bettie Clore, Bargersville, Ind.....	1 50
Second premium, Mrs. Geo. W. Hilligoss, Shelbyville, Ind.....	75
Pear pickles, Mrs. W. A. Ford, Indianapolis.....	1 50
Second premium, Mrs. V. L. Wilson, Connersville, Ind.....	75
Tomato catsup, Mrs. R. L. Hurlbert, Malott Park, Ind.....	1 00
Second premium, Mrs. I. M. Porter, Indianapolis.....	50
Cucumber catsup, Mrs. W. A. Ford, Indianapolis.....	1 00
Second premium, Elinore B. Ford, Indianapolis.....	50
Chili sauce, Mrs. R. L. Hurlbert, Malott Park, Ind.....	1 00
Second premium, Mrs. I. M. Porter, Indianapolis.....	50
Boston baked beans, Mrs. J. B. Powers, Indianapolis.....	1 00
Second premium, Mrs. Frank C. Stewart, Indianapolis.....	50
Gelatine dessert, in any form, Mrs. J. B. Powers, Indianapolis....	1 50
Second premium, A. J. Voris, Indianapolis.....	75
Collection French candies, home-made, Miss L. Hollingsworth, Indianapolis	1 50
Second premium, Mrs. I. M. Porter, Indianapolis.....	75
Collection taffies, home-made, Miss L. Hollingsworth, Indianapolis.	1 50
Second premium, Mrs. Frank C. Stewart, Indianapolis.....	75
Jellies, collection, Mrs. V. L. Wilson, Connersville, Ind.....	3 00
Second premium, Mary McVey, Castleton, Ind.....	2 00
Preserves, collection, Mrs. V. L. Wilson, Connersville, Ind.....	3 00
Second premium, Jennie H. Droke, Gadauliet, Ind.....	2 00
Fruit butters, collection, Mrs. Bettie Clore, Bargersville, Ind.....	4 00
Second premium, Jennie H. Droke, Gadauliet, Ind.....	2 00
Canned fruit, collection, Jennie H. Droke, Gadauliet, Ind.....	5 00
Second premium, Mrs. V. L. Wilson, Connersville, Ind.....	2 00

PROFESSIONAL COOKING.

Best collection of cakes, Mrs. Frank G. Wood, Indianapolis.....	\$2 50
Second premium, Martha Luking, Bicknell, Ind.....	1 25
Best collection of candies, Mrs. E. B. Bryson, Indianapolis.....	2 50
Second premium, Mrs. J. B. Powers, Indianapolis.....	1 00
Fanciest gelatine dessert, Mrs. J. B. Powers, Indianapolis.....	2 00

Second premium, Mrs. E. B. Bryson, Indianapolis.....	1 00
Fancy bread for evening refreshment, Mrs. J. B. Powers, Indianapolis	1 50
Second premium, Miss L. Hollingsworth, Indianapolis.....	75
Fancy dessert for evening refreshment, Mrs. J. ⁴ B. Powers, Indianapolis	1 00
Second premium, Mrs. E. B. Bryson, Indianapolis.....	50
Fancy relish for evening refreshment, Mrs. J. B. Powers, Indianapolis	1 00
Second premium, Mrs. E. B. Bryson, Indianapolis.....	50

ART.

CLASS LIX—Knitting and Crotchet Work.

(Mrs. W. L. Berryman, Judge, Tipton, Ind.)

Infant's shirt, Mrs. W. L. Wilson, Connersville, Ind.....	\$1 00
Second premium, Lulu McMullen, Charleston, Ill.....	75
Infant's socks, display, Mrs. C. Dille, Greensburg, Ind.....	1 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	75
Pair silk mittens, hand knit, Miss Anna Miller, Quincy, Ill.....	1 50
Second premium, Mrs. L. E. Rockwell, Quincy, Ill.....	75
Pair silk stockings, hand knit, C. C. Burns, Greensburg, Ind.....	2 00
Second premium Mrs. L. E. Rockwell, Quincy, Ill.....	1 00
Infant's crochet sacque, Mary J. Lynch, Kokomo, Ind.....	1 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	75
Couch cover, Mrs. L. E. Rockwell, Quincy, Ill.....	2 00
Second premium, Miss Anna Miller, Quincy, Ill.....	1 00
Crochet skirt, Mrs. L. E. Rockwell, Quincy, Ill.....	2 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	1 00
Silk purse, Lulu McMullen, Charleston, Ill.....	1 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	50
Crotchet bedspread, Mrs. L. E. Rockwell, Quincy, Ill.....	2 00
Second premium, Miss Anna Miller, Quincy, Ill.....	1 00
Infant's silk cap, Mrs. L. E. Rockwell, Quincy, Ill.....	1 50
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	75
Ladies' shawl, knit, A. M. Klein, Crawfordsville, Ind.....	1 50
Second premium, Mary J. Lynch, Kokomo, Ind.....	75
Ladies' shawl, crochet, second premium, Mary J. Lynch, Kokomo, Ind.	75
Crochet slippers, Mary J. Lynch, Kokomo, Ind.....	1 50
Second premium, Miss L. Hollingsworth, Indianapolis.....	75

CLASS LX—Lace, Hand Made.

(Mrs. W. L. Berryman, Judge, Tipton, Ind.)

Lace, Battenburg, C. C. Burns, Greensburg, Ind.....	\$1 50
Second premium, A. M. Klein, Crawfordsville, Ind.....	1 00
Lace, Point, Miss Fannie Miner, Indianapolis.....	2 00
Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Lace, Duchess, C. C. Burns, Greensburg, Ind.....	1 50
Second premium, A. M. Klein, Crawfordsville, Ind.....	1 00
Lace, Honiton, second premium, Mrs. L. A. Moore, Terre Haute, Ind.	1 00
Lace, Flemish, Flora V. Greenstreet, Indianapolis.....	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind.....	1 00
Lace, Bruges, Mrs. L. A. Moore, Terre Haute, Ind.....	1 50
Lace, Applique, Mrs. C. Dille, Greensburg, Ind.....	1 50
Second premium, C. C. Burns, Greensburg, Ind.....	1 00
Lace dresser scarf, Miss Anna Miller, Quincy, Ill.....	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Lace table cover, Mrs. L. A. Moore, Terre Haute, Ind.....	1 50
Second premium, Elinor B. Ford, Indianapolis.....	1 00
Lace center piece, C. C. Burns, Greensburg, Ind.....	1 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	75
Lace sideboard scarf, second premium, C. C. Burns, Greensburg, Ind.	75
Lace collar, A. M. Klein, Crawfordsville, Ind.....	1 50
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio.....	1 00
Lace handkerchief, second premium, Mrs. L. A. Moore, Terre Haute, Ind.	75
Best article not mentioned in this class, Miss Fannie Miner, Indian- apolis	1 50
Second premium, Miss Anna Miller, Quincy, Ill.....	1 00
Best display of laces, Mrs. J. T. Henderson, Covington, Ind.....	4 00
Second premium, A. M. Klein, Crawfordsville, Ind.....	2 00

CLASS LXI—Embroidery, Hand Made.

(Mrs. W. L. Berryman, Judge, Tipton, Ind.)

Delft, Mrs. R. H. Talbutt, Lexington, Ky.....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Jewel, Lulu McMullen, Charleston, Ill.....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Iridescent, Lulu McMullen, Charleston, Ill.....	2 00
Second premium, Mrs. Mary R. Carver, Indianapolis.....	1 00
Ideal Honiton, Mrs. L. A. Moore, Terre Haute, Ind.....	2 00

Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Cotton, Mrs. C. W. Vance, Paris, Ill.....	2 00
Second premium, Mrs. H. D. Field, Greensburg, Ind.....	1 00
Kensington, Mrs. R. H. Talbutt, Lexington, Ky.....	2 00
Second premium, A. M. Klein, Crawfordsville, Ind.....	1 00
Rope silk, Mrs. L. A. Moore, Terre Haute, Ind.....	2 00
Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Roman, C. C. Burns, Greensburg, Ind.....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Outline, Mrs. R. H. Talbutt, Lexington, Ky.....	1 50
Second premium, C. C. Burns, Greensburg, Ind.....	75
Embroidery on bolting cloth, Mrs. P. D. Stagg, Greensburg, Ind....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Embroidery on chamois, Mrs. Mary R. Garver, Indianapolis.....	2 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	1 00
Queen Anne darning, Mrs. L. A. Moore, Terre Haute, Ind.....	2 00
Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Decore, Mary J. Lynch, Kokomo, Ind.....	1 50
Lunch set, Mrs. R. H. Talbutt, Lexington, Ky.....	3 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	2 00
Doily set, Mrs. H. D. Field, Greensburg Ind.....	2 00
Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Linen tablecloth and six napkins, Mrs. Jennie Troemel, Indian- apolis	4 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	3 00
Hostess cloth, Mrs. R. H. Talbutt, Lexington, Ky.....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Tray cloth, Mrs. R. H. Talbutt, Lexington, Ky.....	1 50
Second premium, A. M. Klein, Crawfordsville, Ind.....	75
Skirt, silk embroidery, Mrs. L. A. Moore, Tipton, Ind.....	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	1 00
Infant's shawl, silk embroidery, Mrs. L. E. Rockwell, Quincy, Ill..	2 00
Second premium, Mrs. P. D. Stagg, Greensburg, Ind.....	1 00
Infant's cap, silk embroidery, Mrs. C. Dille, Greensburg, Ind.....	1 50
Second premium, Miss Anna Miller, Quincy, Ill.....	75
Sideboard scarf, Mrs. L. A. Moore, Terre Haute, Ind.....	2 00
Second premium, Mrs. R. H. Talbutt, Lexington, Ky.....	1 00
Dresser furnishings, four pieces, Miss Anna Miller, Quincy, Ill....	2 00
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	1 00
Couch pillow, Lulu McMullen, Charleston, Ill.....	2 00
Second premium, Mrs. J. L. Stout, Jeffersonville, Ind.....	1 00
Toilet cushion, new style, L. K. Roney, Troy, Ohio.....	3 00
Second premium, Mrs. Frank G. Wood, Indianapolis.....	2 00
Table cover, Miss Anna Miller, Quincy, Ill.....	3 00
Second premium, C. C. Burns, Greensburg, Ind.....	2 00

Table center, embroidered, Mrs. R. H. Talbutt, Lexington, Ky....	2 00
Second premium, Sisters of St. Joseph, Indianapolis.....	1 00
Handkerchief case, Lulu McMullen, Charleston, Ill.....	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	75
Glove case, Mrs. Geo. E. Brittain, Dayton, Ohio.....	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	75
Picture frame, embroidered, Lulu McMullen, Charleston, Ill.....	1 50
Second premium, Mrs. L. E. Rockwell, Quincy, Ill.....	75
Bulgarian work, Helen M. Goodwin, New Castle, Ind.....	1 50
Second premium, Miss Anna Miller, Quincy, Ill.....	75
College pillow, Mrs. Maude Everett, Indianapolis.....	2 00
Second premium, Mrs. Maude Everett, Indianapolis.....	1 00
Best specimen not mentioned in this class, Mrs. R. H. Talbutt, Lexington, Ky.	1 50
Second premium, Miss Nellie Leeson, Indianapolis.....	1 00

CLASS LXII—Sewing, Machine and Hand.

(Mrs. W. L. Berryman, Judge, Tipton, Ind.)

MACHINE WORK.

Display of ladies' underwear, Mrs. P. D. Stagg, Greensburg, Ind..	\$3 00
Second premium, Mrs. L. E. Rockwell, Quincy, Ill.....	1 50
Ladies' tea jacket, Mrs. E. B. Bryson, Indianapolis.....	2 00
Second premium, Mrs. L. Hollingsworth, Indianapolis.....	1 00

HAND WORK.

Hemstitching, specimen, Mrs. H. D. Field, Greensburg, Ind.....	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	1 00
Hemstitching, silk, not handkerchief, Mrs. Wm. Welch, Indianapolis	2 00
Hemstitching, linen; not handkerchief, Mrs. C. Dille, Greensburg, Ind.	2 00
Second premium, Lulu McMullen, Charleston, Ill.....	1 00
Drawn work, Mexican, Miss Anna Miller, Quincy, Ill.....	2 00
Second premium, Mrs. H. D. Field, Greensburg, Ind.....	1 00
Infant's outfit, complete, most sensible and neat, Mrs. C. Dille, Greensburg, Ind.	4 00
Second premium, Mrs. H. D. Field, Greensburg, Ind.....	2 00

CLASS LXIII—Ladies' Fancy Work.

(Mrs. W. L. Berryman, Judge, Tipton, Ind.)

Couch pillow, most sensible, Lulu McMullen, Charleston, Ill.....	\$1 50
Second premium, Winifred Austin, Crawfordsville, Ind.....	75

Infant's nursery basket, Mrs. L. Brown, Indianapolis.....	2 00
Second premium, Mrs. C. Dille, Greensburg, Ind.....	1 00
Book cover, linen, Mary J. Lynch, Kokomo, Ind.....	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	75
Lunch set, Mrs. L. E. Rockwell, Quincy, Ill.....	2 00
Second premium, Mrs. R. H. Talbutt, Lexington, Ky.....	1 00
Doilies, not embroidered, Mrs. H. D. Field, Greensburg, Ind.....	1 50
Second premium, Mrs. C. Dille, Greensburg, Ind.....	75
Fancy apron, Mrs. C. Dillé, Greensburg, Ind.....	1 50
Second premium, Mrs. L. Hollingsworth, Indianapolis.....	75
Kitchen apron, most practical, Mrs. Geo. E. Brittain, Dayton, Ohio	1 50
Second premium, Helen N. Goodwin, New Castle, Ind.....	75
Table cover, not embroidered, Miss Anna Miller, Quincy, Ill.....	1 50
Second premium, Mrs. L. A. Moore, Terre Haute, Ind.....	75
Table center, not embroidered, C. C. Burns, Greensburg, Ind.....	1 50
Second premium, Mrs. L. E. Rockwell, Quincy, Ill.....	75
Fancy opera bag, Mrs. Mary R. Gärver, Indianapolis.....	1 50
Second premium, Lulu McMullen, Charleston, Ill.....	75
Laundry bag, Mary J. Lynch, Kokomo, Ind.....	1 50
Second premium, Miss Anna Miller, Quincy, Ill.....	75
Quilt, silk, needlework, Miss Anna Miller, Quincy, Ill.....	3 00
Second premium, Mrs. L. E. Rockwell, Quincy, Ill.....	2 00

CLASS LXIV—For Amateurs Exclusively.

(Laura A. Fry, Judge, Lafayette, Ind.)

Best display pictures, $3\frac{1}{2} \times 3\frac{1}{2}$, Benj. W. Douglass, Indianapolis....	\$3 00
Second premium, H. P. Dahlen, Terre Haute, Ind.....	2 00
Best display of pictures, $3\frac{1}{4} \times 4\frac{1}{4}$, H. P. Dahlen, Terre Haute, Ind..	3 00
Second premium, Benj. W. Douglass, Indianapolis.....	2 00
Best display of pictures, 4×5 , Benj. W. Douglass, Indianapolis....	3 00
Second premium, Jas. E. Taggart, Delaware, Ohio.....	2 00
Best display of pictures, $4\frac{1}{4} \times 4\frac{1}{4}$, Miss Minnie B. Akass, Chicago, Ill.	3 00
Best display of pictures, 5×7 , Jas. E. Taggart, Delaware, Ohio....	3 00
Second premium, H. P. Dahlen, Terre Haute, Ind.....	2 00
Best display of pictures, $6\frac{1}{2} \times 8\frac{1}{2}$, H. P. Dahlen, Terre Haute, Ind..	3 00
Second premium, A. M. Klein, Crawfordsville, Ind.....	2 00
Best specimen, $3\frac{1}{4} \times 4\frac{1}{4}$, Jas. E. Taggart, Delaware, Ohio.....	1 50
Second premium, H. P. Dahlen, Terre Haute, Ind.....	75
Best specimen, 4×5 , Benj. W. Douglass, Indianapolis.....	1 50
Second premium, H. P. Dahlen, Terre Haute, Ind.....	75
Best specimen, $4\frac{1}{4} \times 4\frac{1}{4}$, Benj. W. Douglass, Indianapolis.....	1 50
Second premium, Jas. E. Taggart, Delaware, Ohio.....	75

Best specimen, 5x7, H. P. Dahlen, Terre Haute, Ind.....	1 50
Second premium, A. M. Klein, Crawfordsville, Ind.....	75
Best specimen, 6½x8½, Jas. E. Taggart, Delaware, Ohio.....	1 50
Second premium, A. M. Klein, Crawfordsville, Ind.....	75

CLASS LXV—Decorative Art Work.

(Laura A. Fry, Judge, Lafayette, Ind.)

Wood carving, specimen, John W. Myers, Vincennes, Ind.....	\$4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Tapestry painting, Miss Minnie B. Akass, Chicago, Ill.....	6 00
Second premium, Mrs. William Welch, Indianapolis.....	4 00
Best bon-bon, Mrs. Francis Abraham, Crawfordsville, Ind.....	3 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 00
Decorated tray, Mrs. Francis Abraham, Crawfordsville, Ind.....	2 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	1 00
Pyrography, specimen, leather, Harold M. Gusdorf, Indianapolis..	2 00
Second premium, Mrs. Frank G. Wood, Indianapolis.....	1 00
Pyrography, specimen, wood, Harold M. Gusdorf, Indianapolis....	2 00
Second premium, L. A. Wilson, Indianapolis.....	1 00
Pyrography, display, L. A. Wilson, Indianapolis.....	3 00
Second premium, Mrs. Robt. Adolph, Indianapolis.....	1 50

CLASS LXVI—Paintings and Drawings—Amateur.

(Mrs. E. P. Thayer, Judge, Greenfield, Ind.)

Portrait in oil, from life, Miss Minnie B. Akass, Chicago, Ill.....	\$6 00
Second premium, H. E. Summers, Indianapolis.....	3 00
Portrait in crayon, from life, Miss Minnie B. Akass, Chicago, Ill...	4 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Portrait in pastel, from life, Miss Minnie B. Akass, Chicago, Ill...	4 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Portrait in water colors from life, Miss Minnie B. Akass, Chicago, Ill.....	5 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Ideal head in oil, H. E. Summers, Indianapolis.....	3 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 50
Ideal head in crayon, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Second premium, Fannie H. Frank, Des Moines, Iowa.....	1 50
Ideal head in water colors, Miss Minnie B. Akass, Chicago, Ill....	2 00
Second premium, Winifred Austin, Crawfordsville, Ind.....	1 00
Ideal head, pastel, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Group figure in oil, Miss Minnie B. Akass, Chicago, Ill.....	1 50
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 50

Ideal figure in crayon, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Second premium, H. E. Summers, Indianapolis.....	1 00
Group figure in water colors, Miss Minnie B. Akass, Chicago, Ill...	2 00
Second premium, Winifred Austin, Crawfordsville, Ind.....	1 00
Specimen, flowers in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Mrs. Geo. E. Brittain, Dayton, Ohio.....	1 00
Display, flowers in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio.....	1 00
Specimen, flowers in water colors, Miss Minnie B. Akass, Chicago, Ill.	2 00
Second premium, Mrs. Mary R. Garver, Indianapolis.....	1 00
Specimen, fruit in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Mrs. Francis Abraham, Crawfordsville, Ind.....	1 00
Specimen, fruit in water colors, Mrs. Chas. N. Hunter, Springfield, Ohio	2 00
Second premium, Winifred Austin, 'Crawfordsville, Ind.....	1 00
Specimen, vegetable in oil, Mrs. Francis Abraham, Crawfordsville, Ind.	2 50
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 00
Specimen, vegetable in water colors, second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 00
Display, fruit or vegetable, oil, Miss Minnie B. Akass, Chicago, Ill.	2 00
Display, fruit or vegetable in water colors, Mrs. Chas. N. Hunter, Springfield, Ohio	4 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Specimen, animal in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio.....	1 00
Specimen, animal in water colors, Miss Minnie B. Akass, Chicago, Ill.	2 00
Second premium, Fannie H. Frank, Des Moines, Ia.....	1 00
Specimen, game in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Mrs. Chas. N. Hunter Springfield, Ohio.....	1 00
Specimen, game in water colors, second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 00
Specimen, still life in oil, Mrs. Chas. N. Hunter, Springfield, Ohio..	2 50
Second premium, Winifred Austin, Crawfordsville, Ind.....	1 00
Specimen, still life, water colors, Mrs. Chas. N. Hunter, Springfield, Ohio	2 00
Specimen, landscape in oil, H. E. Summers, Indianapolis.....	2 50
Second premium, Mrs. Francis Abraham, Crawfordsville, Ind....	1 00
Specimen, landscape in water colors, L. M. Churbuck, Brockton, Mass.	2 00
Second premium, Mrs. Francis Abraham, Crawfordsville, Ind.....	1 00
Display, landscape paintings, Miss Minnie B. Akass, Chicago, Ill..	8 00
Second premium, Fannie H. Frank, Des Moines, Ia.....	4 00

Summer scene in oil, Miss Minnie Akass, Chicago, Ill.....	2 50
Second premium, Fannie H. Frank, Des Moines, Ia.....	1 00
Summer scene in water colors, Fannie H. Frank, Des Moines, Ia..	2 00
Second premium, Mrs. Francis Abraham, Crawfordsville, Ind.....	1 00
Autumn scene in oil, H. E. Summers, Indianapolis.....	2 50
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 00
Autumn scene, water colors, L. A. Wilson, Indianapolis.....	2 00
Second premium, Fannie H. Frank, Des Moines, Ia.....	1 00
Winter scene in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Fannie H. Frank, Des Moines, Ia.....	1 00
Winter scene in water colors, L. M. Churbuck, Brockton, Mass.....	2 00
Second premium, Mrs. Chas. N. Hunter, Springfield Ohio.....	1 00
Marine scene in oil, Miss Minnie B. Akass, Chicago, Ill.....	2 50
Second premium, Fannie H. Frank, Des Moines, Ia.....	1 00
Marine scene, water colors, Miss Minnie B. Akass, Chicago, Ill....	2 00
Second premium, Mrs. Mary R. Garver, Indianapolis.....	1 00
Interior scene, oil, Mrs. Francis Abraham, Crawfordsville, Ind....	3 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 50
Interior scene, water colors, L. M. Churbuck, Brockton, Mass.....	2 00
Second premium, Miss Minnie B. Akass, Chicago, Ill.....	1 00
Specimen, pencil drawing, Mrs. Francis Abraham, Crawfordsville, Ind.	1 00
Second premium, L. M. Churbuck, Brockton, Mass.....	75
Specimen, pen and ink sketch, Fannie H. Frank, Des Moines, Ia...	1 00
Second premium, L. M. Churbuck, Brockton, Mass.....	75
Display, pen and ink sketch, second premium, Miss Minnie B. Akass, Chicago, Ill.....	2 00
Drawing, charcoal, from antique, specimen, H. E. Summers, Indianapolis	4 00
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio.....	2 00
Best display of pastels, second premium, Miss Minnie B. Akass, Chicago, Ill.	2 00
Best entire exhibit, paintings and drawings, Miss Minnie B. Akass, Chicago, Ill.	10 00
Second premium, Mrs. Chas. N. Hunter, Springfield, Ohio.....	5 00

CLASS LXVII—Paintings and Drawings—Professional.

(Mrs. E. P. Thayer, Judge, Greenfield, Ind.)

Portrait in oil, made in past two years, Fred Vance, Crawfords- ville, Ind.	\$15 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	8 00
Portrait in watercolors, Agnes C. Schmidt, Indianapolis.....	10 00
Second premium, Sisters of St. Francis, Indianapolis.....	5 00

Portrait in crayon, Fred Vance, Crawfordsville, Ind.....	6 00
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	3 00
Portrait in pastel, Mrs. C. E. Spahr, Indianapolis.....	10 00
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	5 00
Ideal head in oil, Helen M. Goodwin, New Castle, Ind.....	6 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	3 00
Ideal head in water colors, Mrs. C. E. Spahr, Indianapolis.....	4 00
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Ideal figure in oil, Helen M. Goodwin, New Castle, Ind.....	6 00
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	3 00
Group figure in oil, Helen M. Goodwin, New Castle, Ind.....	5 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	2 50
Ideal figure in water colors, Mrs. C. E. Spahr, Indianapolis.....	4 00
Second premium, Mrs. W. R. Galpin, Indianapolis.....	2 00
Group figure in water colors, Mrs. C. E. Spahr, Indianapolis.....	4 00
Second premium, Mrs. W. R. Galpin, Indianapolis.....	2 00
Specimen, flowers in oil, Joe L. Frank, Des Moines, Ia.....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Specimen, flowers in water colors, H. V. Palmer, Indianapolis....	3 50
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Display, flowers in water colors, Joe L. Frank, Des Moines, Ia....	5 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	3 00
Specimen, fruit, oil, Fred Vance, Crawfordsville, Ind.....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Specimen, fruit in water colors, Joe L. Frank, Des Moines, Ia....	3 50
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	2 00
Specimen, vegetable in oil, Helen M. Goodwin, New Castle, Ind....	4 00
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Specimen, vegetable in water colors, Joe L. Frank, Des Moines, Ia.	3 50
Second premium, Mrs. Robt. Adolph, Indianapolis.....	2 00
Display, fruit or vegetable in oil, Mrs. H. W. Barnitz, Urbana, Ohio	6 00
Display, fruit or vegetable in water colors, Mrs. W. R. Galpin, Indianapolis	5 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	3 00
Animal in oil, Joe L. Frank, Des Moines, Ia.....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Animal in water colors, G. V. Strauss, Crawfordsville, Ind.....	3 50
Second premium, Mrs. W. R. Galpin, Indianapolis.....	2 00
Game, oil, Mrs. Marie Folger, Marion, Ind.....	4 00
Second premium, H. V. Palmer, Indianapolis.....	2 00
Game, water colors, Mrs. W. R. Galpin, Indianapolis.....	3 50
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Still life, in oil, Helen M. Goodwin, New Castle, Ind.....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Still life, water colors, Joe L. Frank, Des Moines, Ia.....	3 50

Second premium, Mrs. Robt. Adolph, Indianapolis.....	2 00
Specimen, landscape in water colors, G. V. Strauss, Crawfordsville, Ind.	3 50
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Specimen, landscape, oil, H. V. Palmer, Indianapolis.....	4 00
Second premium, Fred Vance, Crawfordsville, Ind.....	2 00
Display, landscape paintings, Helen M. Goodwin, New Castle, Ind.	6 00
Second premium, Mrs. Marie Folger, Marion, Ind.....	3 00
Interior scēne, oil, Mrs. Marie Folger, Marion, Ind.....	4 50
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Interior scene, water colors, Helen M. Goodwin, New Castle, Ind..	4 50
Second premium, Mrs. W. R. Galpin, Indianapolis.....	2 00
Drawing from antique, head, Mrs. C. E. Spahr, Indianapolis.....	4 00
Second premium, Mrs. Marie Folger, Marion, Ind.....	2 00
Drawing, from antique, figure, Mrs. C. E. Spahr, Indianapolis....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Drawing, animal, Mrs. C. E. Spahr, Indianapolis.....	4 00
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	2 00
Drawing, architectural, Helen M. Goodwin, New Castle, Ind.....	4 00
Drawing, mechanical, Helen M. Goodwin, New Castle, Ind.....	4 00
Second premium, Joe L. Frank, Des Moines, Ia.....	2 00
Pen and ink drawing, Mrs. Marie Folger, Marion, Ind.....	2 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	1 00
Charcoal drawing from life, Fred Vance, Crawfordsville, Ind.....	3 00
Second premium, Mrs. H. W. Barnitz, Urbana, Ohio.....	2 00
Best display of pastels, Mrs. Marie Folger, Marion, Ind.....	4 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	2 00
Best display of crayons, Mrs. H. W. Barnitz, Urbana, Ohio.....	4 00
Second premium, Helen M. Goodwin, New Castle, Ind.....	2 00
Best entire exhibit paintings and drawings, Helen M. Goodwin, New Castle, Ind.....	12 00
Second premium, Mrs. C. E. Spahr, Indianapolis.....	6 00

CLASS LXVIII—China—Amateur.

(Laura A. Fry, Judge, Lafayette, Ind.)

Painting on china, Dresden, Mrs. Mary A. Garver, Indianapolis..	2 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	1 00
Painting on china, Persian, specimen, L. K. Roney, Troy, Ohio....	2 00
Second premium, Josephine B. Stayman, Indianapolis.....	1 00
Painting on china, gold relief work, Mrs. Mary R. Garver, Indian- apolis	2 00
Second premium, Flora V. Greenstreet, Indianapolis.....	1 00
Painting on china, enamel, Flora V. Greenstreet, Indianapolis....	2 00

Second premium, Mrs. Chas. Kramer, Indianapolis.....	1 00
Painting on china, punch bowl and cups, flowers, second premium, Mrs. F. E. Wolcott, Indianapolis.....	2 00
Painting on china, punch bowl and cups, fruit, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	2 00
Painting on china, tankard and cups, second premium, Mrs. Willis Fugate, Indianapolis	2 00
Painting on china, claret pitcher, Mrs. E. P. Thayer, Greenfield, Ind.	4 00
Painting on china, jardiniere, flowers, L. K. Roney, Troy, Ohio....	4 00
Second premium, Elinor B. English, Indianapolis.....	2 00
Painting on china, Doultton, specimen, Mrs. Willis Fugate, Indian- apolis	2 00
Second premium, Josephine B. Stayman, Indianapolis.....	1 00
Painting on china, fruit set, compote and plates, Mrs. Willis Fugate, Indianapolis	4 00
Second premium, Elinor B. Ford, Indianapolis.....	2 00
Painting on china, chocolate set, Mrs. Mary R. Garver, Indianapolis	4 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	2 00
Painting on china, salad set, Mrs. Mary R. Garver, Indianapolis...	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.....	2 00
Painting on china, library set, Mrs. Daisy C. Altland, Indianapolis	4 00
Second premium, Mrs. Mary R. Garver, Indianapolis.....	2 00
Painting on china, tea set, L. K. Roney, Troy, Ohio.....	4 00
Second premium, Mrs. Willis Fugate, Indianapolis.....	2 00
Painting on china, soup set, Mrs. E. D. Clark, Indianapolis.....	4 00
Second premium, Josephine B. Stayman, Indianapolis.....	2 00
Painting on china, pudding set, Mrs. Willis Fugate, Indianapolis..	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.....	2 00
Painting on china, manicure, Mrs. Willis Fugate, Indianapolis....	2 00
Second premium, Mrs. Mary R. Garver, Indianapolis.....	1 00
Painting on china, six plates, Flora V. Greenstreet, Indianapolis..	4 00
Second premium, Josephine B. Stayman, Indianapolis.....	2 00
Painting on china, six plates, figure, Mrs. Mary R. Garver, Indian- apolis	4 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	2 00
Painting on china, six plates, flowers or fruit, Flora V. Greenstreet, Indianapolis	4 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.....	2 00
Ideal head, china or porcelain, Mrs. C. E. Spahr, Indianapolis.....	2 00
Second premium, Mrs. Chas. Kramer, Indianapolis.....	1 00
Ideal figure, china or porcelain, Mrs. Mary R. Garver, Indianapolis	2 00
Second premium, L. K. Roney, Troy, Ohio.....	1 00
Painting on china, portrait, Mrs. Geo. Brittain, Dayton, Ohio.....	4 00

Second premium, Mrs. Chas. Kramer, Indianapolis.....	2 00
Painting on china, dusted tinting, Mrs. Chas. Kramer, Indianapolis	4 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	2 00
Painting on china, lustre, Mrs. Mary R. Garver, Indianapolis.....	2 00
Second premium, Mrs. E. P. Thayer, Greenfield, Ind.....	1 00
Painting on china, conventional, Mrs. Mary R. Garver, Indianapolis	2 00
Second premium, Josephine B. Stayman, Indianapolis.....	1 00
Painting on china, stein, Mrs. Mary R. Garver, Indianapolis.....	2 00
Second premium, Josephine B. Stayman, Indianapolis.....	1 00
Painting on china, toilet set, L. K. Roney, Troy, Ohio.....	3 00
Second premium, Mrs. E. D. Clark, Indianapolis.....	1 50
Painting on china, fish set, Mrs. Willis Fugate, Indianapolis.....	5 00
Second premium, Mrs. Daisy C. Altland, Indianapolis.....	2 50
Painting on china, six cups and saucers, Mrs. Mary R. Garver, Indianapolis	3 00
Second premium, Flora V. Greenstreet, Indianapolis.....	1 50
Painting on china, three ornamental pieces, L. K. Roney, Troy, Ohio	3 00
Second premium, Mrs. Chas. Kramer, Indianapolis.....	1 50
Painting on china, underglaze display, Mrs. W. S. Day, Indian- apolis	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, mineral colors, display, second premiums, Mrs. E. P. Thayer, Greenfield.....	3 00
Painting on china, under instruction, Mrs. E. P. Thayer, Greenfield, Ind.	5 00
Second premium, Josephine B. Stayman, Indianapolis.....	2 50
Best specimen, not mentioned in this class, Mrs. Mary R. Garver, Indianapolis	2 00
Second premium, Josephine B. Stayman, Indianapolis.....	1 00
Best entire display of china painting, Mrs. Willis Fugate, Indian- apolis	10 00
Second premium, Flora V. Greenstreet, Indianapolis.....	5 00

CLASS LXIX*—China—Professional.

(Laura A. Fry, Judge, Lafayette, Ind.)

Painting on china, Dresden, specimen, Mrs. Wm. Welch, Indian- apolis	\$4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, Persian, specimen, Mrs. Wm. Welch, Indian- apolis	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, lamp, Mrs. W. S. Day, Indianapolis.....	4 00

Second premium, Mrs. W. S. Day, Indianapolis.....	2 00
Painting on china, three ornamental pieces, Mrs. Minnie Wilcox, Indianapolis	6 00
Second premium, H. V. Palmer, Indianapolis.....	3 00
Painting on china, relief, gold, Mrs. W. S. Day, Indianapolis.....	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, Doulton, specimen, Mrs. Minnie Wilcox, Indian- apolis	4 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 00
Painting on china, enamel, Mrs. Wm. Welch, Indianapolis.....	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, tankard and cups, flowers, Mrs. Minnie Wilcox, Indianapolis	4 00
Painting on china, tankard and cups, figure, Mrs. W. S. Day, In- dianapolis	4 00
Second premium, Mrs. William Welch, Indianapolis.....	2 00
Second premium, Mrs. W. S. Day, Indianapolis.....	2 00
Painting on china, punch bowl and cups, Mrs. Minnie Wilcox, Indianapolis	6 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	3 00
Painting on china, poster plaque, game, H. V. Palmer, Indian- apolis	6 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	3 00
Jardiniere, Mrs. William Welch, Indianapolis.....	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, claret pitcher and cups, Mrs. Minnie Wilcox, Indianapolis	6 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	3 00
Painting on china, chocolate set, Mrs. Minnie Wilcox, Indianapolis	6 00
Second premium, Mrs. W. S. Day, Indianapolis.....	3 00
Painting on china, tea set, Mrs. Minnie Wilcox, Indianapolis.....	4 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 00
Painting on china, salad set, Mrs. Minnie Wilcox, Indianapolis...	4 00
Second premium, Mrs. W. S. Day, Indianapolis.....	3 00
Painting on china, library set, Mrs. Minnie Wilcox, Indianapolis..	4 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 00
Painting on china, fruit set, Mrs. Minnie Wilcox, Indianapolis...	6 00
Second premium, Mrs. W. S. Day, Indianapolis.....	3 00
Painting on china, pudding set, Mrs. Wm. Welch, Indianapolis....	4 00
Second premium, Mrs. W. S. Day, Indianapolis.....	2 00
Painting on china, soup set, Mrs. W. S. Day, Indianapolis.....	5 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 50
Painting on china, mush and milk set, Mrs. Wm. Welsh, Indian- apolis	4 00

Painting on china, six plates, Mrs. Minnie Wilcox, Indianapolis..	4 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	2 00
China of conventional design, Mrs. Minnie Wilcox, Indianapolis..	4 00
Second premium, Mrs. W. S. Day, Indianapolis.....	2 00
Ideal head, china or porcelain, H. V. Palmer, Indianapolis.....	4 00
Second premium, Sisters of St. Francis, Indianapolis.....	2 00
Ideal figure, china or porcelain, Mrs. Wm. Welch, Indianapolis....	4 00
Second premium, Sisters of St. Francis, Indianapolis.....	4 00
Portrait, china, original design, Sisters of St. Francis, Indianapolis	2 00
Second premium, Mrs. W. S. Day, Indianapolis.....	2 00
Painting on china, dusted tinting, Mrs. Wm. Welch, Indianapolis..	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Six plates, original design, Mrs. W. S. Day, Indianapolis.....	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Decorated water pitcher, Mrs. W. S. Day, Indianapolis.....	6 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	3 00
Painting on china, under instruction, Mrs. Minnie Wilcox, Indian- apolis	6 00
Second premium, Mrs. W. S. Day, Indianapolis.....	3 00
Painting on china, six cups and saucers, Mrs. Minnie Wilcox, Indianapolis	6 00
Second premium, Mrs. Wm. Welch, Indianapolis.....	3 00
Painting on china, punch cups, Mrs. W. S. Day, Indianapolis.....	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Painting on china, plaque of flowers from nature, H. V. Palmer, Indianapolis	4 00
Second premium, Mrs. Minnie Wilcox, Indianapolis.....	2 00
Best entire display china painting, Mrs. Minnie Wilcox, Indian- apolis	12 00
Second premium, Mrs. W. S. Day, Indianapolis.....	6 00

PROCEEDINGS
OF THE
Indiana Horticultural Society.

MIDSUMMER MEETING AT FRANKLIN,
AUGUST 12 AND 13,

1902.

MORNING SESSION.

The Indiana State Horticultural Society, by invitation received from the Johnson County Horticultural Society, met at Franklin, Johnson County, on Tuesday and Wednesday, August 12-13, 1902. The Johnson County Fair Association had suitably adorned their Floral Hall and the day sessions were held there, and the evening session at —— Hall, in the city.

President Stevens called the meeting to order at 10 o'clock a. m., and introduced Mr. J. W. Nixon, Mayor, who, in the following words, gave the Society and its members welcome:

Visiting Members of the State Horticultural Society of Indiana:

Ladies and Gentlemen—It gives me great pleasure to extend to you, in behalf of the citizens of Franklin, a most hearty welcome. You represent the most ancient and honorable of vocations. More than sixty centuries old, coeval with man himself and approved of God, as he planted the first garden eastward in Eden and placed Adam and Eve therein; but Eve's curiosity and Adam's susceptibility led to the disorganization of this first horticultural society, and gave birth to its twin sister, agriculture, and since the line of demarcation between the two has been illy defined. Among the grand galaxy of names emblazoned upon the world's history, none shine brighter than many of the devotees of horticulture. While you have an Adam, Noah, Elisha, Amos, Naboth, Boaz, Burns, Washington, and the Minute Men of the Revolution, who fought from

Lexington to Yorktown; Lincoln, Garfield, Wilson and many others of lesser fame, you have Cain, the first murderer, King Ahab, Queen Jezebel, and many others of equal criminal tendencies. But there is no more moral or religious class than the husbandmen; they live near Nature and Nature's god; they believe in protecting virtue and repressing vice; they believe that virtue is imbedded in the very constitution of Nature, and to ignore this fundamental fact brings in its wake moral bankruptcy.

No vocation so safe, free and independent as yours; while your members are so vast, but rarely does one of them go into bankruptcy, while ninety-three per cent. of merchants fail to gain a competency. God has permitted you to live in the grandest age, and in the best government on the face of the globe. This is an age of moral purity, activity, and advancement, and the idle youth mortgages the possibilities of the future, and vicious habits are but the deadly Upas shadow of moral and financial death. The man who succeeds must not only be equal to the emergency, but must be able to create an emergency where none exists. Men are not so much the product of the times as the times are what men make them. Men in this age can not rest upon the honors acquired by their ancestors, or their own past acts, or knowledge; the question is not what you know, but what you can do. It is truly an age of the survival of the fittest. This is pre-eminently the land of the young man; they conduct and control the affairs of this country as do the young men of no other country on the globe. Our institutions develop the youth. You have a class of schools that not only furnish knowledge, but train their students in their application of it. There is no cutting across lots to success in horticulture, as the most of you well know. You are progressive, and have kept time with the march of events, and have secured recognition at the hands of our government, and one of your number is among the advisers of the chief magistrate of the nation. We have, I am informed, an agricultural output of \$8,000,000,000, and with five per cent. of the world's population and seven per cent. of its area, we are about equal, industrially, to half the remainder of mankind. Husbandry is the foundation stone of our prosperity, the keystone in the arch of our government. From the farm come our greatest thinkers, statesmen, warriors and patriots. Around the farm fireside the mother instills into her sons and daughters the love of God and country. I look back to the old farm life of my youth with great pleasure; those were halcyon days, oases in the desert of life. I am most happy to meet you today. Allow me to again extend to you, on behalf of the citizens of our fair city of Franklin, a most hearty welcome.

RESPONSE BY PRESIDENT W. W. STEVENS.

Ladies and Gentlemen—I will say in response to the Mayor's address that if any of us entertained a doubt about meeting with a cordial welcome here from the good people of Franklin and Johnson County, I think that doubt has now been dispelled.

This State Horticultural Society holds two meetings each year, one of them a winter meeting, at which the discussion of general topics is indulged in. The election of officers and a general management of the Society is conducted. We hold our summer meeting out in different parts of the State with some local society, upon their invitation, and it is upon the invitation of the Society of Johnson County that we are here today.

Horticulture in its broadest sense includes much more than we probably at first comprehend. In the first place, we have the branch called pomology, which includes the growth and production of the larger fruits, the apple, peach, plum, etc. This is probably the leading branch of horticulture as we find it in this State.

Then we have another branch, garden culture, which includes the growth of small fruits, vegetables and all kinds of garden products. This is also a large industry in our State, especially near our towns and villages. We find it is increasing in the southern part of the State, where the larger part of the products are now being shipped to northern markets. This comes second under the general head of horticulture.

Then we have floriculture, a most profitable business for horticulturists in many parts of the State, and it is an important matter in every home. Not only the farmer's home, but the dwellers of our villages and cities are interested, or should be interested, in the growing of flowers. This is something that all are somewhat interested in. We like to see the long, expansive lawn in front of our residences fittingly set to beds of flowers. There is nothing that gives the setting to our homes as well; it gives you an idea of refinement, beauty, fitness, as you approach the home.

We make this summer meeting an observation meeting. We come here not only to discuss things of local importance, but to get object lessons as well. We hope to get something that we can take home and profit from in the future. This meeting not only includes the discussion of topics of interest from those who attend, but we expect to learn from the environment.

We accept the kindly words of Mayor Dixon and will make ourselves at home while we are in Franklin and Johnson County. We rest assured we will try and carry away with us as much information as will probably be imparted to the people living in this vicinity.

I believe now, without any further remarks, we will get down to business. We have quite a lengthy program before us. We must be prompt. If you have any questions to ask, address them to the Secretary or speaker who address you. All are cordially invited to take part in our proceedings. We will get down to our program at once, and proceed first with the roll call.

The following members were present and enrolled under their names:

Mr. and Mrs. W. W. Aikens	Franklin.
Joe A. Burton	Orleans.
Geo. P. Campbell	Bloomington.
Riley C. Case	Woodruff.
G. N. Campbell	Marion.
James R. Clore	Jamestown.
Mr. and Mrs. J. G. Demaree	Morgantown.
Mrs. B. A. Davis	Laporte.
Mr. and Mrs. Byron Dawson	Indianapolis.
Joseph S. Dinsmore	Bloomington.
Mr. and Mrs. Evan B. Davis	Cartersburg.
Jesse P. Elliott	Alquina.
Mr. and Mrs. Edw. Eickhoff	Gallaudet.
Mr. and Mrs. W. B. Flick	Lawrence.
W. H. Fry	Greenwood.
Amos Garretson	Pendleton.
J. C. Grossman	Wolcottville.
J. K. Henby	Greenfield.
Mr. and Mrs. Elisha J. Howland	Howland.
N. C. Haims	Pendleton.
E. M. C. Hobbs	Salem.
Mr. and Mrs. H. W. Henry	South Bend.
Mr. and Mrs. H. J. Hale	Indianapolis.
Mr. and Mrs. D. B. Johnson	Mooresville.
Thos. J. Kelly	Franklin.
J. G. Kingsbury	Irvington.
J. L. Keach	Indianapolis.
Albert List	Franklin.
George N. Moyer	Laketon.
Mr. and Mrs. E. A. Robison	Greenwood.
W. C. Reed	Vincennes.
Walter S. Ratliff	Richmond.
Jonah Stineman	Bennetts Switch.
Mr. and Mrs. W. W. Stevens	Salem.
Evan Swift	Franklin.
B. F. Stinger	Charlottsville
H. H. Swaim	South Bend.
James Troop	Lafayette.
G. W. Truex	Lockman.
W. D. Thomas	Connersville.
J. O. Wilkes	Trafalgar.
Wm. M. Waltman	Nashville.
W. S. Young	Franklin.

President Stevens: I will appoint and announce the following committees:

On Awards—W. C. Reed.

On Flowers—Mrs. E. J. Howland, Mrs. Sylvester Johnson and Mr. J. C. Grossman.

On Resolutions—Sylvester Johnson, W. S. Ratliff and H. M. Stout.

On Nomenclature—E. Y. Teas and Prof. J. Troop.

On motion Prof. Troop's address on "The Seventeen Year Locust" was postponed till this evening and a recess taken till 1:30 o'clock p. m.

AFTERNOON SESSION.

Tuesday, 1:30 p. m.

President Stevens: Secretary Flick wants to make some announcements.

Secretary Flick: We have enrolled sixty-eight members up to this time. If any have come in since the noon recess, please let them enroll, and we invite all who are not members to join our Society. You will receive all the publications free and help to educate our people in fruit growing. The membership fee is one dollar, or fifty cents to members of local societies.

President Stevens: We will now proceed with the program. The first subject for this afternoon is "Possibilities of Indiana for Apple Growing on a Commercial Scale." The first paper on this subject will be read by Mr. J. B. Burris, of Cloverdale, Ind.

POSSIBILITIES OF INDIANA FOR APPLE GROWING ON A COMMERCIAL SCALE.

BY J. B. BURRIS, CLOVERDALE.

The members of this Society need not be reminded of the fact so often demonstrated that Indiana possesses conditions most favorable to commercial orcharding. But while such recognized conditions do exist, comparatively few have taken advantage of the same. It has been a question with the writer why so few carry to a realization these opportunities. Efforts have been made to create an enthusiasm for orchard planting, but with little success. I feel satisfied that no business could be so successfully exploited in favored districts of our State as apple growing. After noting the gross neglect permitted by the average grower to his orchard,

I am inclined to believe that orcharding, if carried to a successful venture, at least at the present time, must be conducted on a large scale, and necessarily a thoroughly practical one. Individuals or companies should plant large areas, the care of which should be given over to a well-informed, experienced grower.

I feel that a number of successful ventures of this kind would do more to develop orcharding, and especially apple growing, than all the agitation given the subject by talking and lecturing upon what we know to be true. Besides, it would give us a reputation beyond the borders of the State, attracting buyers of fruit and fruit lands.

Success in apple growing in Indiana can be expressed in one word—care. Care in selecting locations, care in selecting varieties adapted to different localities, care in cultivation, including fertilizing, care in spraying, care in packing and marketing. This lack of well-directed effort is the source of failure of many who engage in apple growing, or any other business, for that matter.

I feel that it were better, from a commercial standpoint, for the individual farmer to plant more extensively than he does, provided, of course, the planting is judiciously done. A great deal of the expense of orcharding is in the fighting of fungi and insect pests, and this work will be the better and more effectively done when more is invested. It is easier to neglect a few trees, thinking them not worth the bother. Besides, pests and disease are not so prevalent, and trees bear better when planted in larger areas. Cultivation would probably be better done in the case of the large orchard, for tools adapted to the business would be purchased. Perhaps one of the best arguments for extensive planting is in the matter of marketing. Buyers are attracted to districts where large orchards abound and where these orchards are limited to a few varieties. Transportation in this State is now a minor consideration.

Thousands of acres of cheap lands suitable for apple growing could be made valuable in eight years, yielding creditable revenues to the State and the owner. I have no desire to give an optimistic coloring to the business of apple growing in a commercial way, for, like all ventures, it is beset with reverses and difficulties. But it does seem that with suitable land selling at from ten to fifteen dollars per acre that in a few years' time can be made to realize three times its former value, there is not much of an element of chance. Recently a small grower in my own neighborhood sold his orchard of fruit at one dollar per bushel on the tree, the buyer taking all risks; and an inferior quality of Maiden Blush is retailing at the present time in the Indianapolis market at forty cents per peck.

The hillside farmer of Indiana must of necessity quit grain growing because of wasted fertility. Let us insist that he engage in apple growing. I know a vast deal of matter has been written, much of it presented to this Society, in the same strain as this paper.

I have wondered if there was any new or novel method by which the importance of the subject of apple growing could be presented to the farming and landholding class of our State. Perhaps there is no better way than has been suggested, viz.: Let each enthusiastic horticulturist present an object lesson to those about him and hope for good and lasting results.

President Stevens: We will now hear a paper on the same subject by F. M. Buker.

POSSIBILITIES OF COMMERCIAL APPLE GROWING IN INDIANA.

BY F. M. BUKER, ROME CITY.

Endeavoring to comply with the request for a paper on the possibilities of Indiana for growing apples on a commercial scale, will state that I am unacquainted with the southern and central belts of the State, never having visited either, and from personal observation know nothing of the capabilities of those sections for apple growing. I have grown apples to a limited extent in the northern belt of the State, and have observed the system of apple growers in the past and which is still much practiced, namely, to plant the tree and let nature do the rest. That method thirty or forty years ago gave the early planters an abundance of excellent fruit, but owing to a change in conditions, obvious to all apple growers, the method is not now producing the results it formerly did, and the scarcity of good apples and the exorbitant price they command ought to suggest the necessity of a better method of production.

The commercial grower has found that better method, and will grow the commercial apples of northern Indiana, unless the private growers adopt the methods which give success to the commercial grower. The northern belt of the State, situated on the great glacial drift which covers bedrock to a depth of several hundred feet, with an average elevation of nearly 900 feet above the gulf climate, modified by proximity to the great lakes, and not subject to destructive spring frost, presents an inviting field for the labors of the commercial grower of apples.

President Stevens: Mr. Waltman, of Nashville, a successful apple grower, will read the next paper.

POSSIBILITIES OF INDIANA FOR GROWING APPLES ON
A COMMERCIAL SCALE.

BY WM. M. WALTMAN, NASHVILLE.

When our forefathers came to the State of Indiana, sixty, seventy and eighty years ago, in the southern portion of the State they found a soil and climate that was suitable to the growth of timber. The hills and the valleys were covered with an immense growth of poplar, walnut, oak, beech, sugar, lynn, hickory and other timber, and among this growth could be found wild fruits of crab apples, persimmons, grapes, blackberries, sarvises, hawes, huckleberries and many others.

The lay of the land is rolling and hilly, with here a high peak, yonder a ridge dividing the waters of the various streams winding their courses to the Ohio river, and arms from these ridges are putting out every few rods, and between each arm is a deep gulch or ravine which form the feeders for the streams. So that the surface of the land in the southern part of the State is uneven and what is termed "hilly," thereby giving the lands the best surface drainage possible, and not only a surface drainage, but also the deep gulches leading down from these high ridges give a good atmospheric drainage. The soil is of the red, yellow and white clay mixture underlaid first with a shale of sandstone which, when exposed to the air or freezing, dissolves and becomes soluble, and is rich in the fertilizing qualities that produce timber growth. After you get below the shale, then you strike sand or limestone, which has large crevices or seams and permits the roots of trees to penetrate its seams or crevices, from whence they draw very rich support, giving them a most vigorous and healthy growth.

The climate is of the medium, having in the winter season from freezing to zero, and sometimes ten or fifteen below, and in spring, summer and fall nice, lovely and balmy temperature, from freezing to ninety degrees, and in extreme cases may reach the one hundred mark. The seasons are supplied, usually, with a sufficient amount of moisture, and droughts seldom or never occur of long enough duration to kill or injure the strong and healthy timber, and in the spring following one of the seasons that we term a drought the timber will put forth her foliage strong and vigorous.

The lands above described are cheap, and thousands of acres of the unimproved lands can be bought for from five to ten dollars per acre. It is true that most of the merchantable timber from said lands has been removed, and the forest fires have destroyed many other trees, but the land being of such nature, soon puts forth a new growth of timber, and fields and plats that have been cleared and "turned out" for a few years

now look as if they had never been in a state of cultivation, and would be taken by many to have their virgin timber remaining.

The surrounding scenery is beautiful, grand and healthy; yonder to your right is a high and lofty ridge over 1,000 feet above the sea level; near by a deep gulch hundreds of feet deep; in front a sparkling stream winding its way to the Ohio, with rich, fertile valleys suitable for corn, wheat, oats and rye; and to the left and all around you may be seen the curling smoke from the trains, steamboats and factories at Indianapolis, Franklin, Columbus, Martinsville, Bloomington, Bedford, Seymour, New Albany, Madison and many other places that tell us that there are many persons that would like to have a good luscious apple to eat.

Such as I have partially described is the condition of the soil, the lay of the lands, the climate and the fertility of the soil for growing timbers and fruit, the beautiful seasons and surroundings, the vine-clad hills and valleys being equal to that of Italy. While the low black and rich lands of the valleys and prairies are the places for raising corn, wheat and other cereals; yet the conveniences of market, the vigorous and healthy growth of the few apple trees that have been planted, the beautiful color, sweet flavor and abundance of the fruit they bear, tell us that the "possibilities of growing apples in southern Indiana on a commercial scale" is good—yes, very good, and only need the nerve and pluck of some future "Johnnie Appleseed with one pocket filled with appleseed and the other with his Bible," to come again and demonstrate that those hills and ridges are the places intended by the Great Architect for the raising of apples.

DISCUSSION.

J. A. Burton: Mr. President—In considering the possibility of the land and the people, I believe so far as the land is concerned the possibility of Indiana for growing apples is equal to that of any land on earth. But so far as the people are concerned, there is not much hope. They are slow to take a hold. We need more Yankees among them.

Wm. M. Waltman: One time I was standing on the street in the city of Columbus, and my attention was called to the people that were passing me. I began to think of what they were talking about, and I listened, and to my surprise nine out of every ten were talking how to make a dollar. Show the people how to grow apples, and that the apples will produce the dollar. I took a piece of land that would not sell for taxes. I bought it in for the walnut trees that were on it. I put out an orchard on that land. The first crops I got off of it brought me \$100 an acre. That's the way to give it a start. Show them it will produce apples, and that apples will produce the money.

Mr. Kingsbury: Let us hear from Mr. Flick.

W. B. Flick: I think Mr. Burton has touched one point of the question, a very important one; so did Mr. Waltman. All we need to do is to

convince people that there is money in it, and we can best do that by object lessons. Of course, you do not want to, and I do not want to start the object orchards, but it ought to be done in every community. Now, the conditions that surround apple growing are different from what they were a few years ago. Eight or ten years ago all of you know that in an apple year we could not dispose of all of them; they were not profitable; we could not sell them because of a gorged market, and had to lose many from the fact that there was no way of keeping them. We now have cold storage within reach of every part of the State. Apples can be kept from summer to summer as good as they were when they came from the trees. This, you will readily see, gives us a chance to keep them without flooding the market. There is ready sale in Indianapolis, Chicago and every other large city. There may be others where there is a slight demand for apples in cold storage. Indianapolis and Chicago, I am informed, never had as many apples in cold storage as they wanted, and Mr. Burton and Mr. Waltman have shown, and I think I have myself, that apple growing in Indiana can be made very profitable. There is nothing that one can put his land to that will bring him any more money than apple growing. I have an orchard of fifteen acres that was planted in 1875. I have had one total failure. Every other year except that one I have made money enough to pay all expenses and have something besides. My orchard has been bearing twenty years. The general average year after year is about \$60 an acre above expenses. I paid \$65 an acre for my land and put it out. It is worth now perhaps \$100 or \$125 without the fruit. I make nearly my land back every year. It is not the hard, intricate matter it is supposed to be. Any person with good common sense can attend to it. All he has to do is to have the energy and a liking for his business. I believe that Indiana possesses advantages for apple growing that no other State west of the Allegheny mountains possesses. She has the climate and soil. It has been demonstrated by the above showing. She has the market from the west and east, north and south. She has a market at home which will consume all the apples that Indiana can grow for years to come. I am anxious about this matter, and would be glad to see Indiana wake up to her possibilities in apple growing.

President Stevens: Does central Illinois possess any better advantages for apple growing than most of Indiana, and why is it that the fruit industry along the apple growing line is more thoroughly tested, and the apples are larger than we are growing?

W. B. Flick: It appears they grow fine apples in central and southern Illinois. Their land is, perhaps, a great deal of it like southern Indiana; they are subject to pests and conditions that we are not. Their apples mature earlier than ours; thereby less valuable for cold storage. They are further away from the eastern market. I don't think they can excel us in quality and color. They may have larger apples, but for quality and color they can not excel us.

President Stevens: Let us hear from Mr. Burton.

Joseph A. Burton: I don't know what you want to hear. I am making money out of my orchard. Mine is an object orchard. I go around and tell people to come and see it. I am more than making the money on my orchard, I am getting enjoyment. There is a difference between our people and the Illinois people. Over in Illinois every tree is a Ben Davis. We don't have to grow Ben Davis. We can grow better kinds, but our people don't do it. I don't know how to explain. You will have to make them understand the fun and the profit of apple growing.

Prof. Troop: I have tried for a good many years to make the people believe that Indiana was a good fruit growing State. It seems to me that there are four conditions that are necessary in growing fruit—climate, soil, location, and the proper kind of a man. Perhaps they ought to be reversed. I think that the greater portion of this State is good for apple growing, except, perhaps, through the northwestern part. Our State is not entirely in the fruit growing section, but through the northeast, the east and the southern part of the State I don't believe you can find better fruit growing land anywhere than we have in those localities, both in regard to soil and location. If there is intelligence and work brought to bear there is no reason why we should not grow apples equally with Illinois, Ohio and Iowa. Many varieties we can grow much better than they can with their conditions. It seems to me that success in apple growing from a commercial standpoint is sure, and the only thing that seems to be lacking is men—men with the proper makeup. Many men plant orchards and expect them to take care of themselves, and then wonder why they don't make money out of them. Wherever I have traveled where a man has planted an orchard and taken care of it, he is making money. This year they have good crops of apples, bringing a good price, and the same result will be found every year to a greater or less extent.

Mr. Kingsbury: Orchards that have been properly taken care of have been showing a good degree of profit to the owner, but that is not the experience this year, and I doubt if it is Prof. Troop's. I would like for him to point to a single orchard that is like anything in full bearing. I visited one of the orchards, kept by one of the best apple growers in the State, a few weeks ago, and the orchard certainly has not anything to complain of in the way of soil or care that an orchard requires, and he has not ten trees in his whole orchard that are anything like being full: only one variety would give him a profitable crop this year. Maiden's Blush is the only apple doing any good this year.

Mr. Hobbs: I can tell of one instance coming to my observation recently, and that is some Winesap apple trees on Mr. S——'s place. I was there some weeks ago. Mr. S. pointed out some trees that had borne

continuously good crops for five years. These trees, however, have had the best care; they had been sprayed and thinned so the trees were not allowed to exceed themselves. They were ready for business next year, same as this year. The trees overbear themselves, and in a case like last year we have a failure. It was a miracle for the tree to pull through the extreme drought. We did not expect fruit the following year.

E. Y. Teas: I don't believe any one with common sense expects a crop of apples every year, but then there are many places in Indiana where apples bear plentifully and are nice. There are plenty of places where orchards do first rate. In our own Wayne County, along the streams on the first and second bottoms, there are orchards which after a few years never do any good, but on the hills they do first rate. A man has to select certain localities for growing fruit. He has to use common sense. In the growing of apples, especially in the central and northern part, my observation is that success is not so certain as it is on the hill lands in the southern part. I think one reason why it seems to me that Illinois is ahead of Indiana is that the people are better informed on apple growing. I think that a great many of the Hoosiers, especially in the southern part of the State, lack enterprise.

Mr. Little: I think we all ought to be very well satisfied with the apple crop this year, when we take into consideration the extreme drought we had last year. Trees can not have a good crop where they are allowed to overbear.

Mr. Elliott: I will say a few words on this subject. I went to spraying my orchards. Two of them I sprayed this year thoroughly, and I have a good crop of apples; two of them I did not spray, and I have no apples in them. I have more apples, with the exception of one individual, than all others in the whole township. I was offered \$1,000 for ninety trees. If there is not money in that, then I don't know what there is money in. There is a way of leading a boy or even a girl to like apple growing; give them an interest in what you have. If you make them do the work and take all the money, they, of course, will become discouraged. I have gotten so old I can not climb trees any more. I have a granddaughter keeping house for me; she climbs the trees and saws the limbs off when I direct her. Some people ask her if she is not ashamed to do that. She says: "I am not ashamed to do anything for grandpa." I also have a grandson, and we live only five miles from Connersville. I give that boy all the strawberries he can sell, so I am trying to teach him how to do business. He is selling apples while I am here today. We had a storm Sunday; we picked up thirty or forty bushels of apples. That boy is taking them to Connersville, getting one dollar a bushel for windfalls. Where they are not spraying the codling moth has ruined the apples entirely. My apples are

fair all over. If you spray a tree, let me tell you one thing: You must get all around that tree and throw the spray thoroughly all over. I take my paris green and mix it up in one-half-gallon cans and let it stand for about five or six days before I want to use it. For 300 gallons of water I take three pounds of paris green and three pounds of arsenic. I put the arsenic in salsoda and boil for an hour, let stand five or six days, then add twelve or fifteen pounds of sulphate of copper and as much lime as I want to for pears. I don't think I have seen a dozen worms in all the pears. I have fifty peach trees. There is one thing about them, they hold the spray better than an apple.

Prof. Troop: I would like to ask some of those old apple growers if there is any good reason why an apple tree will not bear every year?

A Member: They just won't do it. I have a Jeniton tree which bears every other year, and always has done so for forty years.

A Member: I have been cultivating my orchard for six years and I have had a good crop of apples every year on that orchard, and would have had a good crop this year had it not been for our storm on the 25th of June.

E. B. Davis: I think if you thin your apple trees you will have a crop every year. I think we let our trees overbear.

Mr. Kingsbury: I have a tree twenty years old, and for the last five or six years I have tried to make it bear every year by thinning, but it has done no good. My observation is that central Indiana is a first class apple growing region. Mr. Flick says that his orchard has not made but one failure in twenty years.

E. J. Howland: Mr. Flick is located on the height of land and the ground slopes in every direction from his orchard, and he is on the highest point that I know of in Marion County. I attribute his success largely to his location.

W. B. Flick: I think Mr. Howland is right in regard to frosts, but otherwise I don't see that it has much to do with the question. I know people in central Indiana who have small orchards that are equally as successful as myself by attending to them. I think the main point, as Prof. Troop has said, is the man.

John Tilson: Now, I have traveled through the northern part of this county (Johnson) and I am satisfied after seeing one orchard that it is the man. I have a friend whose orchard is full. He had sixty barrels picked, the best I ever saw, and had sent off fifty barrels the day before I had called. Now, I believe it is the man and not the ground or location. His location is no better than in this township, Clark, Pleasant or any other place. I think you can grow apples here and plenty of them.

Mr. Clore: I am not a member of the association, but it strikes me there is something lacking in this meeting. I don't like to hear these old fellows talking about Illinois beating us, or Ohio, or other States. That hits me hard. There is no reason why we can not compete with any State. It has always been the opinion that Illinois can beat us on corn, but it has been demonstrated that it can not. It strikes me your association needs more Yankees. Go after these fellows and quit talking.

Prof. Troop: Last week I was down through Jefferson County.. As I went down the road, corn on one side was twenty-five bushels to the acre, right across the road the corn was good seventy-five bushels to the acre, on the same kind of soil exactly. What made the difference? In another place I saw an orchard that was loaded down with apples; trees had more than they ought to carry. An orchard right across the road on the same kind of soil exactly had none on it. Was that the fault of the conditions or the man?

President Stevens: This is a most interesting and vital subject to fruit growers, but we have an extensive program and we must hasten to our next topic which is, "Possibilities of Pear Growing on a Commercial Scale in Indiana." As I am the first on this subject I'll request Vice-President E. B. Davis to take the chair.

POSSIBILITIES OF PEAR CULTURE IN INDIANA.

BY W. W. STEVENS, SALEM.

I would be conservative on the possibility of pear growing in Indiana. We know it is possibilities that lead us on. It is the possibility of winning \$10,000, the capital lottery prize, that causes men to spend \$100 in order to get it.

If we can impress upon the people the possibilities of apple culture and show them what can be done, it will cause them to investigate the matter and try their hand along these lines. If we hold up to view the possibilities, we may be sure that enough will imitate our example or follow our steps. Now, in the line of pear growing, my experience has not been such that I can give any very striking results, but knowing a few individuals in my vicinity that have had long experience, I asked them something of the possibilities of pear culture in southern Indiana. One old German, who is one of our best pear growers, was consulted, and while he had but a few trees I learned from him that he had accomplished the following results: His trees were eighteen years old; they began bearing when they were four years old, and with one exception, had borne continuous crops. The largest crop he had received from one

tree was fourteen bushels, and the average production in the eighteen years was sixty-four bushels of fruit per tree. He had been very accurate and kept an account of all his sales. He had realized on an average from his trees \$65 per tree. Thus, taking an acre of ground, 135 pear trees, we have a possibility of an acre amounting to \$7,425 in eighteen years. Now, another neighbor on a tree nine years old last season gathered eleven bushels of pears. His trees began bearing at the age of three years. On an average his trees would bring him in the six years about \$45 per tree, almost as much again as the German had sold, which would make it run about \$13,000 to the acre in the period of eleven years. Now, there are possibilities; these are facts; these things are what we could do under the best management. Studying the markets, doing the best we could with our fruit, the possibilities for fruit growing in Indiana are wonderful, and with those who have been discussing the apple, I say it depends largely upon the man. I would like to have Mr. Reed give us something of the possibilities in his vicinity on a large scale.

W. C. Reed: Four years ago last fall I planted an orchard of twenty-five acres. The yield for last year I think was 1,500 bushels, and the yield three years from setting was 600 bushels. One-third of the orchard was not bearing yet. This year on the orchard there was at least 2,500 bushels. It is a perfect sight. Had very little care; been cultivated in some parts; been sprayed once every spring, very little pruning done.

D. B. Johnson: Is the blight as bad as it has been in former years? I have no blight in my trees; have not had for several years.

Prof. Troop: Speaking of blight. Through our section there has been more blight this year than I have known in years. It is about that way all over the State—pear and apple blight.

Joe A. Burton: I want to say in regard to blight. With us it is scarce this season, have not seen any blight. We are entirely free of blight. Last season we were seriously hurt with the blight.

H. M. Stout: I have had more blight on the few trees I have than for the past ten years. I have always kept the blighted limbs cut out, but there is much blight this year.

G. P. Campbell: That is the case in my county. There has been more blight this season than we have had in many years.

J. K. Henby: This year I have lost nearly everything in my orchard except Keiffer and Dutchess. I noticed yesterday one big fine Keiffer's limbs was all turning black.

H. W. Henry: I believe that northern Indiana is as well adapted to the growing of pears as any part of the State. I have quite a pear

orchard, and I know of none that is better than mine. I know of one man who planted his orchard on the hill side. He never touched it since planting; never cultivated it; never trimmed the sprouts that come up. He had a good crop of pears every year. I am going to have a fine crop of pears this year. No blighted pears in my orchard. No winter killed.

Joe A. Burton: I had a few Keiffers winter killed.

H. W. Henry: I do not believe that a pear orchard should be cultivated after it is a few years old.

A Member: I would like to ask Prof. Troop if the seventeen-year locust had anything to do with the blight. I noticed so very many big limbs blighted. I wondered if the seventeen-year locust had anything to do with it.

Prof. Troop: Very little.

President Stevens: We will now proceed to the next topic which is "Peaches," and we will hear from Mr. Dean.

POSSIBILITIES OF INDIANA FOR GROWING PEACHES ON A COMMERCIAL SCALE.

BY HIRAM P. DEAN, GREENWOOD.

Regarding the growing of peaches on a commercial scale in Indiana, it seems to me a demonstrated fact, and hardly should be considered as a question of possibility. If, however, the adaptability of the whole area of the State be considered, there does not arise a serious question as regards the possible success of large commercial plantings.

Last year's crop of peaches fully demonstrated the fact that peaches can be successfully grown all over the State of Indiana. But again, this year we learn that we get no peaches unless we get them from more favored localities. Now, the commercial planter should first learn how often this last necessity may occur. Having been in the business of growing peaches on a commercial scale my entire life, I desire to state to those who are expecting to enter upon this business that the constant care and cultivation of peach orchards, and the consequent expense must go on uninterruptedly through years of failure as well as the bearing years. We then should know whether the locality in which we plant will give us fruitful years enough to leave us a margin of profit after covering expense of years of failure, use of land, more or less valuable, and the interest, taxes, and other outlays. In ordinary rich soil we can almost make good our expense the first two or three

years while waiting for trees to attain the bearing age by the growing of intermediate crops upon the land. After this the expense increases and we can do nothing but to keep eternally vigilant in pruning, cultivating and the destroying of borers, and in some years, spraying for the prevention of curl leaf, and wait patiently upon each severe cold spell of winter to see whether it has left enough live buds to make a paying crop. Nature is so bountiful in supplying the peach tree with fruit buds that some of our best paying crops have when we had left alive but one bud out of fifteen or twenty.

Now, I can not refrain from calling attention of the prospective planter to this fact, that although this occurred several times in Indiana, the reason for the financial success of these crops was that these same years there was not one live bud in a thousand left in less favorable localities, embracing almost the entire State as well as near surrounding territory. There is also to be taken into account, besides favorable locality, the convenience of, and most profitable markets. The peach should not be picked until ripe, and is so perishable after this that it is most important to have close-by markets. Certain localities can not use but the hardiest varieties, and these are not always the best quality or most suitable for shipping.

As to favorable localities, I would give preference to Ohio River bluffs, through Switzerland, Jefferson and Clark, next, the hills and knobs of Floyd, part of Harrison, Washington, Scott and Brown counties. That there are other portions of the State in the most broken and rolling parts where peaches might pay, no one can doubt. Yet there are enough favorable sites on the southern tier of counties to grow all the peaches that the surrounding available markets and the entire State would consume at anything like remunerative prices. A great deal of this land is by no means the most valuable for farm crops, so there is not so great an investment in beginning, and if crops are more frequent there are two important items in the planter's favor. On the most favorable of these localities our crop years would average possibly two out of three or four out of seven, and this is really as much as the grower should desire, for this reason: The rest and recuperation of the trees, during the years of failure, if properly distributed, is as beneficial to the owner as continual crops. There is also during these off years a very essential lessening of the ravages of the curculio.

I will say to the one who thinks of planting peaches, that there is scarcely a locality in Indiana where the farmer will regret the planting of a few trees on the best protected and most elevated places, for he will, at several times during the life of the tree, have such a supply of this most luscious of fruits as to make the good wife feel that she is not only rich, but well-to-do, but I can not conscientiously say to the farmers of Indiana over the larger portions of the State to plant large commercial peach orchards with the expectation of obtaining

real wealth, and to give any real aid to those contemplating large plantings I can only present to you brief outlines of our experience embracing both successes and failures.

Commencing at earliest recollection of rowing a skiff twenty miles against the current of the Ohio River with our day's picking of peaches, about twenty bushels, to reach the market of Madison, Indiana, we gradually increased our business till we found it necessary to charter a steamboat at \$50 a day in order to get our daily shipments of one to two thousand bushels to the railroad, after which, we have paid as high as \$300 per car expressage to reach our own commission house in Chicago. Even then we had left a profit until the acreage of orchards in our vicinity became so large that prices were reduced so as to make these high rates of transportation prohibitory. Seeking to lower these rates we were compelled to use refrigerator and later ventilated cars and slower transportation, necessitating the picking the fruit greener, at a serious loss in size and a terrible loss in quality of fruit. As there is no fruit that suffers greater loss of quality by being picked too green, this acted as a means of lessening the demand and causing a further reduction of prices. As the river freight to Cincinnati was much cheaper than to northern markets, growers were forced to throw the bulk of their shipments into that city until that market was so congested that profits were obliterated and failure inevitable.

Now, the principal points to be deducted from this are not only to select favorable location but also best market facilities, and then keep a high standard of quality by a thorough system of cultivation, pruning, thinning, and picking only thoroughly ripened fruit, as the difference between first class and poor stock often varies two hundred per cent.—the best always selling first, and these being carefully followed. I can say that I believe the outlook for profits are better than for ten years past, and that Indiana can and does grow as fine a quality of peaches as the earth will produce.

President Stevens: Mr. H. W. Henry is next on the program.

POSSIBILITIES OF PEACH GROWING IN NORTHERN INDIANA.

BY H. W. HENRY, LAPORTE.

We are located twelve miles from Lake Michigan, but we are on the wrong side of the lake. The east side of the lake is best for peach growers, but I would say to northern Indiana farmers, plant a few peach trees, because you can get a crop once in three years on an average. I have a new orchard that is seven years old, sixty trees in the orchard. I think now there are forty. Hard winters killed one-third of them. I

have had two good crops of peaches. Getting a crop of peaches once in three or four years, and running the risk, on a commercial scale would not be profitable in northern Indiana; of course, I don't know anything about any other part of the State. Last year we had all over our part of Laporte County a most excellent crop. Northern Indiana had a good crop of peaches, the best we have had for years. This year I don't believe there is a hatful of peaches in the county. I have not seen a peach, and for peaches commercially in northern Indiana I would emphatically advise against it, but peaches for family use, say in lots from ten to fifteen or even 100 trees where a person could afford them, and not take too much of his time, and too much of his valuable land. I say that every farmer that has a few acres of ground or a farm should have a few peach trees on it, and that is the advise I would give. As far as seedlings are concerned, I have fifteen or twenty seedlings, I could never see any difference in their bearing qualities. When I had peaches I had peaches on all trees, and when I had no peaches, I had no peaches of any variety. I don't think there is any great advantage in seedlings in northern Indiana. We hardly ever get peaches, but when we do we get a full crop.

Mrs. B. A. Davis: I would say he is mistaken about northern Indiana. We live ten miles north of him. We get four good crops out of five. I am sorry Mr. Henry lives so close and not near enough to Michigan; that makes the difference.

W. B. Flick: I am not a peach grower. I have within my neighborhood a man, who planted twenty acres in peaches and waited seven years before he got a crop, but he got \$4,300 worth of peaches. The next year was a failure. Then the following year he sold \$2,800 worth of peaches. His trees then were gone. In the meantime he had blackberries in the same field, and he said he made profit every year off his blackberries; so it seems to me, then, in central Indiana we can make money off of peaches on a commercial scale. He sold his peaches in Indianapolis under disadvantages. The first year the market was not very well supplied. The second crop very much oversupplied.

J. G. Kingsbury: Just a word about those blackberries you speak of. He has blackberries in his peach orchard along and between rows. Now, why can not peach and apple orchards be planted with berries in the same manner.

James Little: I have a very fine peach crop this year. I had one bloom, one peach.

E. B. Davis: I think it not best to plant peach trees between your apple trees, even if we could get an occasional crop of peaches. They are gross growers and feeders.

Joe A. Burton: I want to tell you that unless you are better growers than I have ever seen, you will ruin your apple trees before you take your peach trees out. You have not got grit enough to take those peach trees out; you will leave them until they injure the apple trees.

Mr. Hale: I set out peach trees between apple trees and pear trees twelve years ago, and have made a great deal more money off of the peaches than apples or pears. I had no trouble in removing the trees, they blew over.

W. M. Waltman: In answer to the gentleman's question whether it would be profitable to plant apple trees and peach trees together, I say no. I didn't believe this some time ago, but experience has taught me better. Agricultural writers once in a while get on a hobby and get us into the rut. They say "plant peach trees among apple trees." I was foolish enough to believe one of these editors. The result is, I have neither peach or apple trees. The peach trees robbed the ground and enticed borers. Ground is too cheap, apples and peaches too good to spoil the orchard in this way.

Mr. Elliott: I would say never plant peaches in an orchard of apple trees. In the first place, apple trees need all the air they can get. The peach trees generally outgrow the apple trees and shade them. If you want to spray your orchard they are right in the way, and the cheapness of our land enables most any person to have a peach orchard to itself. I would plant a separate orchard for each.

A Member: Mr. President: It seems to me that if we are to complete the program we must be speedier. I therefore move that discussions be limited to one minute speeches.

A Member: I second the motion.

The President put the motion, which was carried.

President Stevens: Our next topic is "Plums," and Mrs. B. A. Davis is the first speaker.

POSSIBILITIES FOR PLUM GROWING FOR MARKET IN INDIANA.

BY MRS. B. A. DAVIS, LAPORTE.

I am expected to tell you something about the "Possibilities of Plum Growing on a Commercial Scale in Northern Indiana," and without any long preface, I will just say from my own experience, it is quite, and altogether possible, to make plum growing pay, from a commercial point of view, provided you attend to several very necessary things, a few of which I will now tell you.

First. You must have a natural love of fruit growing, for your genuine "dyed in the wool" horticulturists are, like poets, "born, not made," though I am not going to say that good horticulturists can't be made, for I know of a few, Mr. Davis, for instance, raises fine peaches, but they are the exception, not the rule. Second. Study the plum business, as I did, by talking with others and looking up the catalogues of reliable dealers, and find, if you can, the kinds suited to your locality and soil. Any soil will do, provided it is not wet, but a black rich sandy soil is best. If very rich, so much the better, in one sense, as your plums will be rich and large and luscious, and will sell quick in any market, and calls for them will be many times and often. One of my orchards had been an old barnyard, and such Bradshaws as we generally have you never saw anywhere else. But you will have to trim and thin fruit more, but it will pay. If your ground is poor and thin, don't despair, make it rich with well rotted manure and wood ashes. Ashes both leached and unleached, and good for all kinds of fruit. Third. We must cultivate the ground, but never, never take a turning plow into your orchard after your ground is nicely fitted and planted, but commence in the early spring and cultivate with any good cultivator or harrow, often till last of August, then sow on oats at the last dragging for winter protection. You can raise potatoes or garden truck the first two years, then let the trees have the ground. Trim fall and spring when trees are dormant. Head low. Mine are mostly one and one-half and two feet from the ground—better for spraying and picking the fruit. Sort nicely when you send to market—never put in a poor fruit, and you can get two or three dollars per bushel and no grumbling. I have more orders than I can fill from our home market. Of course, you must spray. I found I must, so I got two sprayers and then commenced the battle, who should have the plums, the curculio, or me? One of us came off second best, and it was not I, you may be sure.

Now, this you say is hard work. So it is, and lots of it too, but if you love fruit raising and have Yankee grit and perseverance to stick to it, plum raising will fill your purse, sure.

I have of the European kinds some twelve or thirteen; Japs, six, and Native, two; some twenty kinds, about seventy-five trees in all.

GROWING OF THE PLUM ON A COMMERCIAL SCALE.

BY WALTER S. RATLIFF, RICHMOND.

Of the large number of fruits grown at present, doubtless none is perhaps of more general interest to the American people than the plum. Not so much that it is a new fruit, as the wilds of our forests early abounded with the wild plums and our dooryards contain to-day a goodly

share of the cultivated sorts, but, that the development of this kind of fruit has not been as thorough, considering other kinds, as is possible to secure.

If the ripening period of the plum could be extended through a longer series of weeks, it would be far better. It is true, however, that fresh ripe fruit can be gathered from the trees from the middle of July well onto frost. But it is generally the case with the majority of the varieties, that they ripen too abruptly, the crop on each individual tree maturing too much at one time, which often necessitates immediate attention in order to save the fruit. Yet some exceptionable individual varieties continue ripening their fruit during a period embracing two or more weeks, which makes them especially valuable for table use, but of little value for commercial purposes.

To consider the plum commercially, would signify its value not so much for the home and market but its qualities exhibited in ripening, shipping and marketing elsewhere. Its economic value then does not belong wholly with the grower, but to the shipper and consumer as well.

It is known that many varieties ripen evenly well, ship well, but are far inferior in quality, when used for table or canning purposes. Some ripen well, cook nicely, but either rot on the tree as soon as matured, or when placed upon the market. There are some that ripen, keep and sell at the best price, as is the case with the Damsen, yet the very existence of the life of the tree depends upon an attack of that fatal malady, black knot.

While considering the commercial value of plums, it is not expected that the different varieties should be considered separately, in order to indicate their value, but that such reference may be taken to be exceptional, rather than typical of any of the classes of plums, as indicated above, which like other fruits possess peculiar characteristic qualities that render them equal or superior to others.

There are plums that are large, others small, dull or highly colored; sweet, sour or insipid; round or oblong; soft or firm; cling and freestone; early and late; American and Japan, etc., so that the amateur fruit grower may easily find as large a catalogue of varieties as desired to select from.

In traversing our State it is remarkable to note the comparatively small number of fruit bearing orchards that exist within its borders. Many farmers, as well as citizens of the towns and cities, enjoy the fruit of a few individual trees only, and any extra supply that is needed must be shipped in through the cold storage system and from points often entirely foreign to the consumer. The trees in these dooryards are generally short-lived, when compared with the pear and apple, and constant resetting is necessary, resulting in unevenness in the size of the trees as well as in the crops of fruit. These conditions naturally render the cultivation of plums not entirely satisfactory.

The amount of plums that are usually consumed by each family is not very large, and doubtless could be increased, but many plum growers

have realized fully the danger of finding a sufficient number of customers to take the crop that would be likely placed upon the market at certain seasons of the year. It is known that some colors and sizes sell more readily than others, and when a variety drags somewhat, the middle man is quite likely to lose his margin in handling.

The canned article has not proven satisfactory when kept in tin, and for that reason the housewife is not partial to a kind of fruit that is so acid-like in its keeping processes, and naturally refrains from purchasing as generously of the plums as of other fruits, especially the peach.

The advent of the cold storage system has been an important factor in growing fruits commercially, and has largely solved the prospective keeping and shipping of fruits. This has enabled the fruit men to compare the keeping qualities of the different varieties of the various kinds of fruits, and ascertain the value of cold storage in shipping the same to parts often remote. By these shipping facilities the orchardist with his arduous labors and natural drawbacks can cope with his competitor who can grow the plum in its greatest perfection, and the differences in the distances of shipment are of but little significance as compared with former methods.

The main trouble experienced in handling and using cold storage fruit, is that it does not hold up very long after being exposed to the outside air. So long as kept at a fair uniform temperature, the keeping qualities are better secured, but in changing from one retort to another, to different latitudes or placed on the open market during sultry weather, the fruit immediately shows signs of decay.

The color, flavor and solidity of the fruit often determines the sale very largely, but the individual tastes of the ladies usually govern the selection of the plums for the home. An apple is an apple, a peach a peach, but a plum is not always a plum, and once a variety is used, the ladies forever either admire or disdain its qualities, and will veto any variety that they choose. For, of all fruits, the plum undergoes a change in cooking that is peculiar. One with many of the essential salable qualities becomes through heating, insipid and astringent; another with perhaps inferior appearances, with the same treatment, makes a dessert that is most delicious and desirable.

These changes undergone in canning, dessert preparations and jellies have determined largely the tendency in the propagation of newer sorts. This should be liberally encouraged, as the possibilities in the field of development of the plum appear to be as extensive as in any other of the tree fruits under cultivation.

From the northwestern states we find more progress made in this line than the remainder of the Union combined. Doubtless due largely to the soil and climatic conditions of that latitude, as well as the minimum depredation of the curculio and black knot that are so troublesome elsewhere. The results obtained in this plum belt in originating seedling and

newer varieties are of much value, and may be the means of improving the quality and production of this kind of fruit.

The economic feature in commercial plum growing claims a share of consideration. The fruit grower would not be expected to continue in any line of operation that would entail a loss. If the orchardist should neglect his orchard on account of the loss financially, the public should not be too severe in its criticism. But if the varieties grown could be improved upon by renewed planting or the fruit itself bettered by methods followed during its development, the results might be different. But when the many obstacles in extensive plum culture are known, a better idea may be had of the success of the enterprise.

With a good orchard, a few crops at farthest is all that is expected to be grown. The life of a plum tree is usually not very long. The trees are easily injured by the winds and from overbearing; the bodies check and decay and the limbs blight. The texture of the heart-wood is coarse and brittle, lacking the strength of fruit trees generally. The leaves and twigs are subject to the ravages of fungous diseases and the larvae of many insects make inroads in the green foliage.

The thorough and systematic use of the sprayer is acknowledged everywhere. Poisonous solutions to be applied ere the buds fairly burst, and extending till a time when possibility of attacks of insect enemies are past. The expensive solutions, together with the appliances, with the time required in mixing and applying the same, affect directly the economic phase of plum culture, and are of vital importance in securing a crop of perfect fruit.

It is conceded, however, that the time and money expended in spraying is amply repaid in the yield of fruit, and although some plums are considered curculio proof, it has been found that those who fail to spray are not always sure of a crop of fruit.

Admitting the life of a plum tree to be short, it has been found difficult to grow many good consecutive crops from the same trees, even at the stage of best bearing growth and condition. Some are good annual bearers, others shy. Too many bear each alternate summer. Others yield three or four good crops out of a possible ten. A few varieties are annual bearers, generally of a small yield with an occasional heavy crop during the fruiting era.

In considering the eastern part of the State, as a fruit producing district, it can be safely said that at present the growing of the plum on a commercial scale has not been entirely satisfactory, and from the results of years of experience of some of our fruit men in the cultivation of this, one of the most important kinds of fruits, it is shown that it can not be as economically and successfully grown as desired.

President Stevens: Quince culture has not been on our program for several years. Mr. Grossman, will it pay to plant quinces on a large scale for market in northern Indiana?

J. C. Grossman: I can say very little on this subject and have had little experience in growing quinces for the market. In regard to soil suitable, we certainly can grow good quinces, we have the soil and location, as good as anywhere, possibly. I would not advise any one to grow them on a commercial scale in our section of the State, as there is not a demand for any large quantity. We have grown the Champion, which seems to be grown to perfection where they were well cared for. Quinces need good culture and good care to be a success. They are a rich and heavy fruit. I have grown a medium size quince that weighed ten ounces. We have quinces every year in our section, never fail, but a large number of trees froze out two years ago. I think that it is not desirable to plant on a large scale, but considering the soil I think we can grow as fine ones as anybody, and every garden should have some.

President Stevens: "Growing Grapes on a Commercial Scale" is our next topic, and Mr. C. P. Bradley is first on the program.

POSSIBILITIES OF GROWING GRAPES IN INDIANA.

BY C. P. BRADLY, SOUTH BEND.

I believe the possibilities of this industry are almost unlimited in the State of Indiana, from the fact that wherever the fruit from this State is shown in market or on exhibition it has demonstrated this. We are certainly blessed with every advantage with which to grow the finest grapes in America. We have such a variety of soils and the climatic conditions are such that we can grow most all varieties of grapes in some part of the State. Our markets are demanding tons and tons of grapes which we are unable to supply. Our part of the State has become quite densely populated with foreigners, who are great consumers of grape wine, we have received orders to the amount of 5,000 pounds from one Hungarian family, for wine, who expected to use it all for their own consumption. These people make all the grapes into sour wine. This wine is made at a very small expense, hence the demand. One of my neighbors has over six acres of grapes in bearing and still planting more, and he manufactured them all into wine, and he finds a ready market for all that he can produce.

I believe there is at least 100 acres of grapes in my neighborhood within a radius of five or six miles square, and yet, we have not supplied the demand in our home market. Now then, why is this? Simply because we do not understand the possibilities of grape growing in our State, and take advantage of it and grow more grapes. The competition is so strong in this country for fancy table grapes that it does not pay to grow anything but the best, except for wine grapes, which does not make

so much difference, as it is very difficult to make the majority of foreign people understand that the best quality of grapes makes the best quality of wine.

The prices of grapes in Indiana, or at least in northern Indiana, varies somewhat, according to variety and quality. For wine grapes they run from \$20 to \$40 per ton, and for fancy table grapes from two to seven cents per pound. The number of tons produced upon an acre, depends altogether on the kind of soil they are grown upon and in the month in which they are pruned. Close pruning means fancy grapes of best quality, while to deteriorate from this will bring small fruit of an inferior quality.

Now, with the possibilities and great advantages that we have in our State, let us put forth our best efforts to grow this fine fruit.

President Stevens: Next on the program is Mr. Brudi on the same subject.

POSSIBILITIES OF INDIANA GROWING GRAPES ON A COMMERCIAL SCALE.

BY JOSEPH BRUDI, NEW HAVEN.

The question is often asked, Is it possible to grow grapes in Indiana on a commercial scale? To answer this question fairly would necessitate a very careful study of the whole subject. Grape culture depends upon local conditions. The temperature, length of growing season, amount of rainfall, altitude and soil, are all of primary importance. Grapes are quite particular as to soil and cultivation. Although they can be grown on almost any soil, to grow them successfully on a large scale, they must be planted on such soils as are most congenial to their growth. The best soil for grapes is one which is fertile, but not excessively rich in humus. A dry, calcareous, sandy loam that is underlaid by a loose, porous sub-soil, not easily affected by drought and does not contain springs, is the best. Fuller says: "The mechanical texture of the soil has more to do with success or failure than the ingredients which it contains." Indiana has the soil to grow grapes. Perhaps many of them are lacking in fertility; others may be lacking in the proper fertility most congenial to grapes; in others the texture may be bad. This can all be very easily remedied and make them to grow some of the finest grapes.

Selection of site for the vineyard is also of great importance to commercial grape growing. The grape does best on high tablelands, remote from standing water, on hillsides, sloping to the south and southeast. Preferably near large bodies of water, because such situations are usually exempt from late spring and early fall frosts, and the mist arising from

the water gives sufficient humidity to the atmosphere to refresh the foliage of the vines. A situation protected from the north and northwest is of great benefit to a commercial vineyard.

Selection of varieties to be planted in a commercial vineyard is an important point to consider. No one variety is suited to all localities. The best varieties for any locality are those which have descended from the species growing wild in that locality. Selection of varieties greatly depends upon the soil and the purpose for which they are planted. If for near or distant market or wine, those varieties possessing a combination of strong growth, good quality and tough skin should be selected. If for a market that demands the best quality grapes, regardless of price, the Delaware should be selected (wherever it succeeds). One variety may succeed better and be more remunerative in a locality than another. This must be found out by personal study and observation. There are many varieties, all of which are adapted to special purposes. In short, the grower, to be successful, must grow the very best suited to his market.

Planting, training, pruning and cultivating are also very important factors in growing grapes on a large scale. Distance of planting depends upon the varieties planted, fertility of the soil and mode of training to be adopted. Weak-growing varieties, such as the Lady, Green Mountain, Delaware and Moyer can be planted as close as six by six feet, if the soil be fertile enough, and enough fertilizing material is applied from time to time to keep up sufficient fertility to produce a good crop of fruit and fruiting wood. Strong-growing varieties are usually planted eight by eight to nine by ten feet apart. Grapes are generally planted somewhat deeper in heavy soil than on light soils. Ten to fourteen inches is about the right depth to plant. No. 1 one-year or two-year should be planted. Training the grape depends upon the taste of the grower and the varieties grown. It is wholly a matter of convenience, and should usually begin about the second year from planting. There are many modes, each having its advocates. Pruning the vines is a necessity to success. While there are many modes of training, there is but one of pruning. The main object of pruning is: (1) To thin the fruit, develop strong, healthy foliage and to keep the vine in manageable bounds; (2) to facilitate cultivation and spraying; (3) to grow vigorous canes for next year's fruiting wood; (4) to produce fruit of better size and quality.

Grapes should be given clean cultivation during the season until the last of July, when cultivation should cease and some cover crop, such as rye, oats or barley, sown, which tends to stop growth and ripen the wood.

Spraying the grape has become an important and necessary adjunct to commercial grape-growing. The grape is affected by no less than fifteen insect enemies and half a dozen fungus diseases. Spraying should be done as a preventative and not as a curative. The grower should acquaint himself with these pests and the best methods to combat them.

and then spray at the proper time and with the proper material. The grower must exercise judgment and care in the preparation and application of the materials. Soon the grapes will have grown to maturity, and the next thing to do is to market them profitably. Grapes should not be picked until they are perfectly ripe, but should be left on the vines until the stem of the cluster has turned to a brownish hue. The finest qualities of the grape are only fully developed in the perfectly matured fruit. Grapes should be gathered in fair weather, when the dew is off. The cluster should be cut from the vine with a sharp knife or scissors, being careful not to injure the bloom. They should be picked into shallow trays, and after being graded and all imperfect and diseased fruit is removed, packed into shallow trays for local market, and eight to ten-pound Climax baskets for shipping. In packing, the bunches should be placed with the stems downward, and the whole packed snugly and of a uniform grade. The name of the variety, as well as that of the grower, should be stamped on the package. The grower must pack his grapes in such a manner as to attract the attention of the purchaser, and pack only uniformly good grapes. They will establish a reputation and command the best prices, while the mixed and inferior packed grapes will hardly pay to grow. In this age of competition it will only pay to grow the best. Skillful packing and handling of grapes are only acquired by practice.

With good markets near at hand, and good shipping facilities which the State possesses, and if the foregoing factors necessary to successful commercial grape growing, mixed with a personal study of the subject, a good supply of muscle grease and a little common sense are applied, commercial grape growing in Indiana must in time become one of the great industries of the State.

President Stevens: We will hasten and take up the next subject, "Strawberries," by Mr. Reed.

POSSIBILITIES OF INDIANA FOR GROWING STRAWBERRIES FOR MARKET.

BY W. C. REED, VINCENNES.

In reviewing the possibilities of Indiana for growing strawberries, I would first consider the markets we are to supply. We have Chicago in easy reach, and Indianapolis, South Bend, Terre Haute, and all the manufacturing cities of the gas belt within a few hours' ride of any of us. These are all good markets, and seldom have enough choice berries to supply the demand. With the best markets in the central west at our door, we should strive to supply their wants, if our soil is adapted to

growing strawberries, and I assure you from my personal knowledge, I think there is no State that can excel us for fine berries. Indiana berries usually bring twenty-five to fifty cents more per crate on the Chicago market than berries from Illinois and other nearby States. Our soil is fertile, our shipping facilities excelled by none.

Soil.—Select the best piece of ground you have, with a southeastern slope, if possible. If you want early berries, sand is the best, but for the general crop I prefer a clay loam, as it stands the drought better and will give more berries and of larger size. Don't be afraid of getting your ground too rich, but commence one year in advance and give a good coat of barnyard manure, and then plant to potatoes or sow to cow peas. Then, as early in the spring as the soil will work well, plow eight inches deep and pulverize thoroughly, as deep as possible, and drag or roll until the soil is very compact and fine. If you can get wood ashes, I would work in fifty to seventy-five bushels per acre. Mark off your rows three and one-half feet apart, and set your plants the same day the ground is broken, and then put on a good, heavy roller and roll right over the plants.

Plants.—Always take your plants from a new bed that has never fruited, and dig the rows clean, as plants taken from the sides of the row are the late runners, and are usually weak and poorly rooted. Always shorten the roots in planting, so they can be put in the ground without wadding.

Distance.—Set plants eighteen to twenty-four inches apart in the row, depending somewhat on the variety, as some varieties will make more runners than others.

Cultivation.—Start the cultivator at once after planting, and keep it up once each week until frost, unless prevented by rain. Never allow a crust to form, if it can be avoided. When the runners begin to come, train them to fill up any vacancies, and place a little dirt on each one when hoeing, to hold them in place until they become rooted. Do not allow the plants to become matted in the row, but keep them four to five inches apart. And when the rows become eighteen inches wide, keep the balance of the runners out.

Covering.—In the fall, soon as the ground is frozen solid enough to hold up a wagon, put on four to five tons of straw per acre, so as to protect the plants from the continued freezing and thawing in the latter part of the winter. In the spring, part the straw from over the row enough to let the plants through. This mulch, while it may make your berries a few days later, will hold the moisture and give better berries and more of them, and besides they will not be covered with dirt.

Picking.—Strawberries should be picked every two days, and in the height of the season pick every day, and be sure they are picked clean, as a few soft berries in a crate may spoil the sale of the entire crate. Leave one-half-inch stem on each berry, and keep the varieties separate

when crating them up. Fill the boxes full as you can so as not to mash them when putting on the lids when nailing up the crates.

Old Patches.—Soon as through picking, mow off with a mowing machine, and as soon as dry, rake off the straw and harrow the rows down with the cultivator to about eight inches; thin out the plants where too thick and cultivate same as a new patch, and if you have favorable weather, you should have plenty of new plants to give you a good crop the next season, and then plow up.

In conclusion let me say that there is no crop that will pay larger returns for the labor and money invested than strawberries, and no crop will respond to extra cultivation more readily than they. The writer marketed \$2,000 worth of berries this season off of ten acres of ground, and one-half of this was an old patch.

President Stevens: Mr. Davis will continue the subject.

POSSIBILITIES OF GROWING STRAWBERRIES ON A COMMERCIAL SCALE.

BY EVAN B. DAVIS, CARTERSBURG.

Indiana, with her population of over 2,500,000 people, must be furnished with good, fresh strawberries. We have the soil, climate and backbone necessary to grow this supply. Calculating that each inhabitant used one gallon during the entire berry season, and double the amount should be used, it would require over 3,000 acres to supply the demand. And if a good grade of fruit were furnished, the amount consumed would be double. For example: The little village of Plainfield, with about 1,500 inhabitants, consumed 500 to 800 gallons of berries four or five years ago, but since better varieties have been introduced and fruit marketed in neater packages, the demand exceeds the supply, and this season no less than 2,500 gallons were marketed, and at very satisfactory prices. The same is true of Danville, Clayton and other villages of our county, and no doubt these conditions are the same all over the State. Educate the people to eat great quantities of this luscious fruit by growing and offering for sale only extra fine berries, and then a market is already made for several growers in each county. And, by the way, a home market is the best market.

Besides satisfying the demands of our own people, we should come in for a share in supplying the neighboring cities, as Chicago, Cincinnati and others, with a population equal to our own. Should we produce a surplus over the home demand, we have unsurpassed facilities for shipping cheaply and quickly to other markets. The expense, and often serious loss, is now avoided by shipping in refrigerator cars. Our soil is

capable of producing as large crops of first quality fruit as any State, and being in a densely populated part of the country, there is no reason why we should not grow and market as paying crops of strawberries as any of our neighboring States.

President Stevens: We will now have a paper from Mr. Howland on "Currants and Gooseberries."

GROWING SMALL FRUITS ON A COMMERCIAL SCALE IN INDIANA.

BY ELISHA J. HOWLAND, HOWLANDS.

This subject is not one of my selection, and inasmuch as other bush fruits have been named and discussed, I infer that my subject is "Currants and Gooseberries," they being the most important of the unnamed fruits. Commercially, I think, they are among the most profitable fruits grown.

That Central Indiana can produce these fruits in quantities greater than the local consumption demands has been proven years ago. For several years we have been compelled to call upon Cincinnati, Louisville, St. Louis, Chicago, Detroit and all the intervening towns and cities for a market for these fruits, and sometimes not at remunerative prices to the producer.

Most soils in Central Indiana are adapted to these fruits, if thoroughly drained and sufficiently fertile. Wet soils and surface water are destructive to plants and encourage mildew. Both fruits require clean cultivation, but shallow. Both have their insect enemies, perhaps to a greater extent than many other fruits, but they can be more easily controlled by close attention and prompt application of insecticides.

Neglect for a single season often destroys the crop and seriously affects the bushes, which seldom survive two seasons' neglect. A daily inspection is necessary, during the season, for the pests, to ascertain their first appearance and to promptly apply the remedy. Our soil and climate are well adapted to this industry, and the market most of the time satisfactory, but sometimes there comes a glut in the market that is discouraging, however, not more so than for many other products of the farm and garden.

President Stevens: We will now take a recess till 1:30 p. m.

The local society had prepared, in an adjoining building, a lunch, at which 300 to 400 hungry fruit growers, their wives and children, sat down with eminent satisfaction. Almost all were able to resume business at 1:30 o'clock, when President Stevens called to order, and said

that, inasmuch as the fruit list recommended for the State had not been revised recently, it was thought to be advisable to have some information with regard to what varieties of each of the kinds of fruits succeed best in our State. In accordance, the secretary sent out letters to 100 of the most successful fruit growers of Indiana, covering every part of the State, requesting each to name fruits of his specialty which he had found to be reliable and worthy of cultivation. Several have responded, and we will now hear their list. We will first take up apples for Southern Indiana, then Central Indiana, and, last, Northern Indiana.

VARIETIES OF APPLES FOR A COMMERCIAL ORCHARD IN SOUTHERN INDIANA.

BY GEO. P. CAMPBELL, BLOOMINGTON.

I think about the year 1894, at the meeting of the American Pomological Society, the committee on fruits reported 532 varieties of apples, and there are probably 400 varieties by this time. As there are about as many varieties of tastes as there are of apples, it would be a very hard matter to give a list that would suit everybody, if we would consult our taste and fancy.

In selecting varieties of apples for a commercial orchard we must have nothing in mind but the money we expect to get out of the business. If the market demands Ben Davis, grow Ben Davis. If it wants Wild Crabs, they are the thing to grow.

A great mistake that is usually made is planting too many varieties. It is easier to sell 1,000 bushels of one variety than to sell the same number of ten or twenty varieties. Select for the main planting only a few of the hardiest varieties and of good keeping quality. Select medium to large apples of bright color, for most people, when it comes to buying fruit, do the tasting with their eyes. If it looks well, it is all right. Select varieties that have firmness, so they will bear shipping. A barrel of soft apples shipped 100 miles will not bring very fancy prices.

The Yellow Transparent is among the best for early, the only objection being that it is a little too tender to handle well. The next is Benoni, which is the best summer apple grown. It is of good color, of fine flavor, and a splendid cooker, and lasts longer than any other summer apple. The Wealthy is a good market apple for fall use. I don't consider it a first-class apple, but it has good color and size, which makes it go on the market.

"Old Grimes is dead, that good old man," but the apple that bears his name will live on as one of the best early winter varieties for family or market.

For the winter varieties I would recommend the Wine Sap. While it is of only medium size, its color and keeping qualities are good, and the flavor hard to surpass. Jonathan is another red apple that I would put on the list as one of the best.

The York Imperial seems to be showing up well, and I believe it is going to be one of the leading winter varieties as soon as it is better known. It is of good color and size, and I consider it a fine apple.

There is another that I must not forget to put on the list; that is the New York Pippin, better known as Ben Davis. For my own use I prefer almost anything else, but its size and looks make it go where other better varieties would not sell at all. Its bearing qualities recommend it, as well as size and pretty red cheek, for you can generally have Ben Davis if you don't succeed with other varieties.

There are several others that are perhaps as good as the ones mentioned, but I believe if any one wants to plant a commercial apple orchard in Southern Indiana, and will select the varieties named, he will not go far wrong.

COMMERCIAL APPLE FOR SOUTHERN INDIANA.

BY JOE A. BURTON, ORLEANS.

Benoni is entitled to first place on the list. It is best quality, good color and good keeper. It bears abundantly, and is comparatively free from disease and insects. Its fault is overbearing, making apples small, rendering it an alternate bearer.

Yellow Transparent is of good quality, and sells well. However, its bad points are more than its good ones. Is a favorite with curculio, very tender and drops a great many apples before fair size. Its worst fault is the liability of tree to blight. I want to say right here there are many apples I know nothing about, doubtless some very good ones. Practically, we have a skip from Benoni to Grimes. The old varieties have retired. No use trying to substitute Wealthy for Rambo and Leese. There is too great a drop in quality.

For winter our list is short. We have the domineering Grimes, the popular Rome Beauty, the world-bearing Winsap and the despised Ben Davis. Without doubt, Grimes is the most universally admired apple in the world. It bears fairly well, is uniform in size and generally free from insect injury and disease. It bears its apples on the inner limbs, enabling it to carry enormous crops without injury to tree.

Were its keeping qualities good, it would monopolize the market. The ideal with the experimental orchard is a red Grimes that will keep all winter. Rome Beauty is good quality, good size and good keeper. Is

slow to color, but if not red when gathered, makes amends by taking on a beautiful yellow. It drops seriously before gathering time. It ranks next to Winesap for profit.

Winesap, in our locality, outranks all. With good treatment it always bears, keeps and always sells. It is best color, good quality and fair size. It hangs on till gathering time. Its principal fault is the straggling habit of tree.

You all know Ben Davis. It is no good with me. It is a hothouse of disease and insects. I don't condemn it on account of quality, but habits. I know its habits are good in many places, but not with me.

For home use and for those who know what they want, I find nothing equal to Roll's Genet.

COMMERCIAL APPLES FOR CENTRAL INDIANA.

BY C. M. HOBBS, BRIDGEPORT.

Summer.—Astrachan, Yellow Transparent, Benoni, Summer Red Stripe, Chenango, Longfield.

Fall.—Wealthy, Maiden Blush, Pewaukee, Wolf River, Tulpehocken.

Winter.—Ben Davis, Stark, Indiana Favorite, York Imperial, Grimes' Golden, White Pippin.

VARIETIES OF APPLES FOR NORTHERN INDIANA—HOME USE AND MARKET.

BY JNO. W. MOOREHOUSE, ALBION.

This subject presents two distinct propositions. The land in Northern Indiana is neither mountainous nor level, just rolling enough to afford natural drainage sufficient on most farms for an orchard, and artificial drainage easy where required. Its uneven surface serves as a protection from the influences of cold and winds. The soil produces walnut, hickory, beech and sugar. As the texture and fibre of the apple tree is similar to these, it produces strong, healthy apple trees—the primary source of perfect fruit. The climate and seasons, standing between the extremes of cold and heat, are congenial to the growth of a great variety of apples. Of the hundreds of varieties of apples that may be grown here quite successfully, some of these may lack the quality and flavor found in the same varieties grown elsewhere, and some may excel. Tastes

differ; some people like one variety, some another. What varieties, then, shall we grow for home use? I can only suggest those varieties that respond readily and bear well under average care, and suit any taste, leaving all perfectly free to vary the list by leaving out or adding to, as it may suit their taste and space for growing.

I would suggest the Red June for very early, followed with the Yellow Transparent, with the Early Harvest for variety if you like it. Then, by all means, grow the Duchess Oldenburg. The Red Astrachan is a good second choice. The Ice apple makes splendid sauce and pie. For cider, grow Talman's Sweet. Grow the old reliable Rambo to thicken the apple butter with and for the children to take to school for appetizers (if they need them). These apples, when buried or kept in a very cool cellar, are always acceptable of a winter's evening. For winter use I would suggest as first choice Grimes' Golden, Wealthy, Jonathan, Baldwin, York Imperial and Ben Davis. With one exception, all of these may be grown here to perfection, and afford ample variety for the most fastidious taste. But from those who wish to grow them, I have no desire to exclude the Yellow Bellflower, Greening, Golden Russet, Northern Spy and many others.

The local trade may be supplied with the varieties already named, but for shipping or the market proper I would draw the line abruptly. The mistake of the past has been too many varieties grown and too few of a kind. The remedy is easy. Grow only a few varieties for market and only those that will sell together. For the general market, winter trade, we would suggest growing only these four varieties: York Imperial, Jonathan, Baldwin and Ben Davis.

The York Imperial bears well here, and is a good keeper. It will keep in ordinary storage until the middle of the following June, and suits the taste of most people fairly well.

The Jonathan, though a shy bearer, is of splendid flavor, looks well and sells well. The Baldwin grown here under proper care (mark the distinction), for a general purpose apple, is hard to excel.

The Ben Davis, though lacking the flavor found in it when grown in some other localities, is a hardy apple, good keeper, attractive, and sells on any market. The most important condition involved here is to know that you have a profitable market for your apples when produced. Consult the catalogues of the various nurserymen, and you will find these varieties listed in nearly all of them, showing that there is a general demand for this stock. Consult the market reports of the great centers of trade and you will invariably find these apples quoted high on the markets. High quotations always indicate ready sales. In growing apples for home use, we consult only our individual taste and the natural environments that will contribute toward gratifying our taste. In growing them for market, we necessarily consult the demands of trade and the conditions that surround us in our endeavors to meet those de-

mands. In doing this we find those four named varieties sell readily, separately or together. Any surplus that we may grow does not require to be peddled or hawked about. They will find ready sale in any large market, by the barrel, car lot or train load. Not only this, but let it be known that large quantities of these apples are grown and for sale in any locality in Northern Indiana, and buyers from Chicago, Buffalo and New York will be in our midst, bidding for the fruit, just as they now are here buying other staple products of the farm.

VARIETIES OF APPLES RECOMMENDED FOR COMMERCIAL PLANTATIONS IN NORTHERN INDIANA.

BY J. C. GROSSMAN, WOLCOTTVILLE.

Apples.—Northern. For a commercial orchard of apples in Northern Indiana we would recommend the following varieties in the order of their ripening, viz.: Yellow Transparent, Duchess of Oldenburg, Wealthy, Grimes Golden, Smith Cider, Jonathan, Ben Davis and York Imperial. Some persons might object to Smith Cider, but in our locality it bears every year, and in alternate years extra heavy. The quality is much better than Ben Davis, and we do not know of an apple that sticks to the tree better than Smith. There are many other varieties that are deservedly very popular in the northern district, many of which, in center localities would, or could, be included in a commercial list. Among the best are these, in order of ripening: Red Astrachan, Sweet Bough, Maiden Blush, Rambo, Fameuse or Snow, Fink, Northern Spy, Talman Sweet, Baldwin, Rhode Island Greening, Roxbury Russet, etc. Of crabs the Hyslop, Transcendent and Whiting are best, and most generally planted.

VARIETIES OF APPLES FOR NORTHERN INDIANA.

BY CHAS. M'CLUE, ANGOLA.

Thirty years ago no finer apples were raised anywhere than in Steuben County, Indiana. Buyers were attracted here from all directions, but now not enough apples are raised to attract a single buyer. The old orchards have all gone to decay. Just why this is so is not entirely plain, for many of these orchards should be in a healthy condition yet.

No doubt the day of raising apples here by the old careless methods has gone by, for, as our bird friends have decreased, our insect enemies have increased. The apple grower will have to overcome, by artificial

means, those obstacles that were provided for by nature. The outlook for apple growing here is not very encouraging, but I still believe that the business will be successfully carried on by the specialist who will pursue correct methods.

As to the varieties of apples, I think those kinds that have done the best in the past will be the kinds for the future. Of course, new kinds may be introduced that may be equal to, if not superior to anything now grown. The Baldwin is ahead of any apple ever raised in this county; next, the Rhode Island Greening. These two have been more productive than any other winter apple. For summer, the Early Harvest, the Summer Bellflower and Sweet Bough; fall, Lady Blush and Twenty-Ounce. These varieties, I have noticed, have continued to bear after many others ceased to be productive. The Ben Davis may be a profitable apple, and also the Stark apple.

Apples seem to ripen earlier than they did years ago, and also are very often blown off by the winds of autumn. In order to make success complete, a wind break should be raised with the orchard.

APPLES FOR A COMMERCIAL ORCHARD IN CENTRAL INDIANA.

BY E. Y. TEAS, CENTERVILLE.

I am somewhat reluctant in giving out a list of fruits to plant. So many conditions are to be taken into consideration—soil, climate, purpose, the man. However, I hand you this list as one that seems O. K.: Yellow Transparent, Maiden Blush, Wealthy, York Imperial and Ben Davis.

For Family Use.—Yellow Transparent, Early Harvest, Benoni, Maiden Blush, Wealthy, Grimes' Golden, Roman Stem, Winesap, Jonathan and York Imperial.

APPLES FOR COMMERCIAL PURPOSES FOR SOUTHERN INDIANA.

BY WM. M. WALTMAN, NASHVILLE.

Now, I beg the pardon of this association for not preparing a paper. Is it granted? I will give my reasons on that because it is short. I felt like I didn't want to go on the stage. The paper would be like the old gold meetings years ago in our county. Some inspector put out lies about a gold bed down there, and every year a great many people would come

in there to dig gold. One old man came from the East; he was a Yankee. He dug a while, but didn't get much. He saw an advertisement in a paper that for so much money he would be told how to get the gold. He sent the money, came to the postoffice regularly every week to get his recipe. One day it came. He took it out, opened it and cut off one paper, unrolled it, came to another paper, cut off and unrolled, and when he came to the center of it, it just had these three words: "Dig like ——." Now, then, my paper, upon this subject would be simply two words, eight letters—Ben Davis.

Mr. Kingsbury: We must know why.

Mr. Waltman: Because it is the best apple raised, and it is the best apple sold. There is more prejudice against the Ben Davis apple than there is against Ben Davis himself. When I was picking my apples last year, some of the neighbor boys came to my orchard and said: "Ma sent me up to get some apples, but don't send Ben Davis," but, the boy says, "Send them; I will take them home and see what ma says." So they got a sack full of the Ben Davis. They came back the next morning with a note thanking me for sending her the best apple she ever had. They are good cookers, good lookers and good sellers, do fairly well to eat in the winter. That's why I raise the Ben Davis. I have an orchard of 5,000 trees. The nurseryman made a mistake in putting off a few on me that were not Ben Davis. Buyers who come to my orchard take the piles of Ben Davis first, and say, "You can put the others in if you want to, but we don't care a cent whether you do or not." I would say to every one who wants to set an orchard for commercial purposes, set Ben Davis every time.

Mr. Burton: I would rather have a Ben Davis than no apple at all. Any man who has traveled over this western apple-growing country can see for himself that the judgment of the people is for the Ben Davis for a commercial apple. The bulk of their trees are Ben Davis. Every tree yields piles of apples; they are higher colored than here. If a man goes out there to buy a car of apples, he wants Ben Davis. Planters always give their orders largely for Ben Davis when buying trees. The more you try to down it, the more it is up. Like the Keiffer pear. A commercial pear means Keiffer, and a commercial apple means Ben Davis.

Mr. Hobbs: I would suggest three or four other varieties along with your Ben Davis. A few Yellow Transparents, as Mr. Burton has well suggested. The Red June has proven one of the very best commercial and home apples. The Red Astrachan is a very reliable and good apple. The Chenango for its beauty and attractiveness. The Duchess of Oldenburg is a newer variety, and has not been so extensively planted over the State as these old varieties mentioned. It has not failed since it came

into bearing. It begins bearing early, and the trees are extremely hardy. The cold or summer drought does not hurt them. The fruit is fair size, rather light color, rather light blush on their sunny side. Cooks very readily. My wife likes it rather better than anything else in its season for cooking. I am quite satisfied in my own mind we could safely plant them and not fail for family use and commercial purposes. There is another profitable apple; it is the Wealthy. It is an early and regular bearer, the fruit is large and highly colored, sells well, cooks well, and is desirable all around. We have a neighbor who planted some trees some years ago. He has a number of other varieties, including Ben Davis. He has made considerable more money off of his Wealthies than any other variety in his orchard. He sold his Wealthies for \$1.25 per bushel in Indianapolis. By picking them early, he gets a crop every year. He picks them before they are fully matured. He says if the tree is not drawn on so heavily to ripen the crop, he has his Wealthies every year. I think for commercial purposes we shall have to still stick to the Maiden Blush, a good old standard sort. Ben Davis for commercial purposes has been tested, a regular bearer, but York Imperial will bear right along with Ben Davis. It is of fine quality and a good keeper. The White Pippin is also a very good apple. We could not leave White Pippin out among our friends.

President Stevens: We will now take up the pears recommended for planting.

E. Y. Teas: I would recommend for market these pears: Wilder, Bartlett, Anjou, Keiffer. For home use: Wilder, Bartlett, Seckel, Anjou, Keiffer.

VARIETIES OF PEARS FOR CENTRAL INDIANA.

BY C. M. HOBBS, BRIDGEPORT.

Of the 1,000 or more varieties catalogued, it has not been my pleasure to see more than fifty varieties of pears. Of these I have grown twenty varieties, and from my own experience will try to give you a list that is best for Central Indiana.

Would plant Wilder Early for first early. This is a splendid pear for home use, but ripens too unevenly for a market pear. This is followed by Tyson, a medium-sized, bright yellow-reddish cheeked pear of excellent quality. These are followed very closely by Clapp's Favorite and Bartlett, too well known and appreciated to need description. These four are the best of the summer pears. Then comes the fall pears. Duchess of Angouleme leads all others as a market pear, because of its productive-

ness and large size. But the fancy trade demands varieties like Bose, Anjou, Howell and Seckel.

There are other good pears that ripen about the same time as the above. The Louis Bonne, Flemish Beauty, and the list would not be complete without a few Sheldons. In shape it is perfect; quality, excellent; color, cinnamon brown or russet. This color is an indication of fine quality. Among the later varieties I think Clairgeau should find a place. Lawrence is a great favorite with some. Small size, but good quality and a good keeper.

Then we have the much-despised Keiffer. More printer's ink has been spoiled condemning this pear than any other variety of fruit, and yet it becomes more popular every year. Like the Ben Davis apple, it has come to stay. There is one more pear that I want to recommend, and that is the Columbia. It is a splendid bearer, always perfect, and a good keeper. It deserves to be more generally planted. While not of the highest quality, it will keep in good condition until midwinter, and hold its flavor better than most winter pears.

VARIETIES OF PEARS FOR COMMERCIAL GROWERS IN NORTHER INDIANA.

BY F. M. BUKER, ROME CITY.

Bartlett, Seckel, Flemish Beauty, Keiffer, Angouleme, Anjou, Lawrence, Mount Vernon.

Have fruited or seen in bearing this list, and find them usually productive. There may be other varieties equally good for the commercial grower.

VARIETIES OF PEARS FOR NORTHERN INDIANA.

BY A. H. SWAIN, SOUTH BEND.

I include in this list only such varieties as have been thoroughly tested and found reliable.

Summer pears in order of ripening—

1. Beurre Gifford.
2. Kirtland.
3. Tyson.
4. Clapp's Favorite.
5. Bartlett.
6. Flemish Beauty.

Autumn—

1. Howell.
2. Seckel.
3. Sheldon.
4. Beurre Bosc.
5. Duchess de Angouleme (dwarf).
6. Louise Bon de Jersey (dwarf).

Winter—

1. Beurre Clairgeau.
2. Beurre Anjou.
3. Winter Nelis.
4. Keiffer.
5. Lawrence.
6. Vicar of Winkfield.

DISCUSSION.

W. C. Reed: In planting pears for market, I don't think it well to plant but few early pears. Wilder Early and Seckel for early market. Following them Clapp's Favorite, Garber and Keiffer are the main commercial pears. Keiffer will make more money than any other variety. I have been growing Garbers for some thirteen years. They bear well, sell well; shipped them last year to Indianapolis. They always bring good money in our market.

W. W. Stevens: I would say that for commercial purposes that in my part of the State, so far as my observation extends, there are but three varieties that I would plant—Seckel, Duchess and the Keiffer—and I have tried the Garber. They are slow sellers with me. The Seckel is our finest pear for family use, fine and ready sale. For late pears I would recommend the Duchess and the Keiffer. With us, I believe, the Duchess is a more regular bearer than the Keiffer for the last six years. I would limit my orchard for commercial purposes to these three varieties.

W. S. Ratliff: I would like to introduce a new pear that was raised in our section. They have been kept as late as the 4th of July the summer following their maturity. For quality it is very much like the Keiffer, half way between the Sheldon and the Keiffer. You will have an opportunity to sample this pear. It is a seedling, and showed large promise second or third season of fruiting. It is a good grower, good, strong, healthy variety, and an excellent keeper. One would think it would become wilted in keeping so long, but this is not so.

President Stevens: We will now have some lists of peaches for Indiana.

VARIETIES OF PEACHES FOR SOUTHERN INDIANA.

BY W. T. TERRELL, BLOOMFIELD.

The varieties of peaches for home market in this section of the State (Southern Indiana) covers several very worthy varieties, some of which are of special merit, and are very valuable, both for home use, and profitable to grow for market, also. The following varieties will be named in the order of their time of ripening, giving with each variety a very brief sketch, or description, so you may catch a glimpse of what it really is. Now, what I mention is of varieties that I either have grown myself or am personally acquainted with. That is what I think this Society wants to know.

The first variety I wish to mention is the first variety ripe with us, which is the Amsden, a red cling, with a very dark red cheek, which is ready for market by the 4th of July. It is a very good variety, with two exceptions. One is, it is subject to rot soon after it begins to ripen (unless thinned on the tree early in the season; another objection is, if left to ripen on the tree (if the weather is very hot), it will ripen on the outside, while next to the seed appears green. This can be overcome, however, by early gathering and placing in a cool, well ventilated fruit house. If you desire to market it a distance from home, this is no hindrance, because we have to gather them before they are soft, anyway. So I consider the Amsden a very profitable peach for the early markets, and, in fact, it is the earliest peach we have here that is hardy and a sure cropper. Now, when I say Amsden, I want it understood that this name covers the Alexander and Arkansas Traveler, all because I think these three named sorts are identically the same peach, sold under the three aforesaid names. Or at least I am not able to distinguish any difference between them, having purchased all three of them, and find only one kind.

The next good and profitable variety is Crawford's Early, a large, yellow freestone peach, ripening from the middle to the last of July, and is a peach that too much can't be said in its praise, both in flavor and size.

Next comes the Stump, The World peach, one of the ideals, filling a gap between Crawford's Early and the general crop ripening from the middle of August to the first week in September. It is a white or cream-colored freestone peach, with a red skin, and a very dark cheek on sunny side. The Stump peach has an excellent flavor and is very juicy, but rather soft for market, unless gathered while a little green.

The time now, from middle of August to middle of September, has several first-rate varieties of peaches that are good for market. First, the Triumph, a nice sized yellow freestone peach, with a red cheek, which is worthy of a place in every orchard. The Crawford's Late, a large

yellow freestone, good for canning, etc. It is also a good bearer with us, and a popular market variety. The Elberta, a large, oblong, yellow freestone, which is well known nearly everywhere in the peach belt, and a very profitable market variety that will bear handling well. It is considered the best peach for commercial orchards on account of its large size and fine appearance; also the hardiness of the trees and their fruit buds. Just after the Elberta, or lapping in the latter part of its season, comes the finest and largest yellow freestone peach that I ever saw. Fifteen inches in circumference is no uncommon thing to find. I have often picked specimens measuring sixteen and one-half inches in circumference. This peach originated here in this (Greene) county from the seed of the Arkansas Traveler, first grown by William Hannah. I procured the first buds from his trees and propagated quite a lot of these trees and sold them to my neighbors, which since that time (1894) have come in bearing, proving one of the most popular canning peaches known in this part of the State. It is a perfect freestone, not having a trace of white, bitter wax next to the seed, so commonly found in freestone peaches. The meat is sweet, juicy and a beautiful clear yellow from the skin to the seed. The tree is a good grower and hardy. The fruit is all that can be desired as a seller on the markets. It will outstrip the famous Elberta when thoroughly introduced, because it is more showy on the market and of much better flavor. I named it the Hannah Seedling peach, after Mr. Hannah, who planted the seed that produced the original tree. It is pretty well known in two or three of the adjoining counties.

The next peach ripening after the Hannah is the Norvell's Mammoth Cling, another Greene County peach, produced from the seed of a peach procured at the World's Fair at Chicago, planted by Dr. H. V. Norvell, of Bloomfield, Ind. The peach is a white cling, larger than Heath Cling, with a dingy red cheek on sunny side. It is a fine canning peach, ripens the middle of September, and promises to be a winner in the markets, because it is ripe and gone before the Heath Cling comes in. Then following the Norvell come the Wheatland and the Wonderful, both excellent, late, yellow freestone peaches, coming in the season when it seems they are needed most. Last, but not least, by a good deal, comes the old, tried, true and ever-to-be-adored Heath Cling, a large white cling—ripe first week in October; some seasons the last week in September, but nevertheless one of the best known and the most popular of any cling peach in existence. The trees are hardy, productive and long-lived. In our propagation of peach trees we always bud a large number of Heath Cling trees, which never go begging for a purchaser.

I will have to add another good peach, which I had nearly forgotten. It is the Heath Free; something similar in appearance; ripens earlier; not quite so large as Heath Cling, but very much like it in flavor.

Now, the varieties I have mentioned are good and profitable kinds. If I were to plant a thousand acres to peach, I don't know of anything better than I have mentioned.

VARIETIES OF PEACHES ADAPTED TO SOUTHERN INDIANA.

BY HIRAM P. DEAN, GREENWOOD.

This is really one of the most important questions that occurs to us in peach orchard planting: What varieties shall we plant? Yet there are so many varieties, and the list being constantly increased, and so much confusion as to these many varieties being true to names, that there is some doubt of my being able to aid the amateur planter to any great degree.

My father, Argus Dean, planted his first orchard in 1856, consisting of 1,600 trees, embracing about sixty of the best known varieties at that time, and it required about twelve to fifteen years in testing these varieties as to quality, size, hardiness and the very essential knowledge of time of ripening, in order to make a constant succession from the earliest to the latest. The list which he selected at that time made the basis of our later plantings, which ran into hundreds of thousands of trees, and we never had cause to regret the use of this lot of selected varieties, although we did later discard some, and add some new ones. This list as we began our future plantings was as follows, given in succession of time of ripening: Early Tillotston, Troth Early, George the Fourth, Crawford's Early, Serate Early York, L. E. York, Mixon Free, Mixon Cling, Crawford's Late, Dean's L. Red Free, Druid Hill, Ward's Late, Lagrange or Health Free and Heath Cling. In a very short time we discarded both the Crawfords, and later Serate Early York, Tillotston and Lagrange.

Our later and larger plantings were made with the following additions: Waterloo, Hale's Early, Mountain Rose, Shipley's L. Red, Crocket's White, Smock Free, Salway and Henrietta. Our still later experience has been with Gudgeon, Chair's Choice, Globe, Wonderful, Wheatland, Diamond, Crosby, Elberta, Swiss, Reed's Early Golden, Bilyeus Oct, and of these I do not consider any that are extra hardy but Gudgeon and Bilyeus Oct, and neither of these two are worthy of large planting. Now, in favorable localities for the southern part of the State, I would select our first list, less those first discarded, with these additions, making list as follows: Hale's Early, Troth's Early, Mount Rose, L. Early York, Mixon Cling, Mixon Free, Elberta, L. Red Free, Druid Hill, Shipley's L. Red, Ward's Late, Smock Free, Salway, Heath Cling and Henrietta, as representing main planting, but would recommend thorough trial and smaller plantings of these: Globe, Chair's Choice, Crosby and Wheatland, since there is a growing demand for yellow stock. Among the newer sorts, I would advise trial of Champion, Triumph, Bokara, Carmen, Piquet's Late, Fitzgerald and Golden Drop. Of locally known varieties the Fleenor and Red Heath are worthy of trial plantings. There is, how-

ever, as first stated, so much confusion in names and varieties that there will always be disappointment and loss on the part of the amateur grower by endeavoring to follow advice of this one and the other. Locality and soil also differ so much that success or failure of certain varieties can be made in a single field. For instance, Hale's Early will not succeed in low, rich land, while Smock Free would do fairly well.

In planting large orchards we have learned to take all these things into account, and to give even reasonably beneficial advice, it is necessary to know where and on what character of soil the different varieties are to be planted, also the distance from and the demands of the markets. Let us illustrate by this: The Mixon Cling is one of the best and most profitable of all peaches, provided we can educate the consumer to use them. The Free, adapted to all soils, is hardy as well as the buds, fruit good size, beautifully colored, always uniform, splendid quality, a good shipper, the best of keepers, and has no superior for canning but thoroughly ripened Heath Cling (which are always scarce), and yet the ordinary housewife refuses to take them because of the trouble in preparing them. So it is, we must be governed by market demands, hence the necessity of the statement made above regarding personal experience in testing more of the yellow varieties, which, however, seem to be almost universally more tender in buds than others, the Salway being the most noted exception to this rule.

VARIETIES OF PEACHES RECOMMENDED FOR COMMERCIAL PLANTATIONS IN CENTRAL INDIANA.

BY WILBUR C. STOUT, MONROVIA.

Many things are to be considered in recommending a list of varieties for a commercial plantation in Central Indiana. Often the best peach one year is of little value the following year. Drought, wet weather, blizzards or untimely frosts get in their work of destruction. We have found the following list our most desirable ones: Sneed opens the season; sells fairly well; poor quality, much like Alexander. Sneed is closely followed by the Alexander type of some fifteen varieties, all very much alike, often pay well. Alexander, Amsden and Early Canada are as valuable as any in the list. Following them we have Greensboro. The most hardy peach in fruit bud recommended; a good white peach. I can't like Triumph, but it sells fairly well and is very hardy here. It is almost a cling, the first yellow peach to ripen. Hyne's Surprise and Hale's Early are very much alike with me, and are valuable. I would have but little choice between them.

Early Rivers also ripens about the same time, a valuable white peach, and is also very hardy in fruit bud and sells well.

Troth and Mount Rose are hardy in fruit bud, bear well and sell well.

Champion and Thurber are fine white peaches, of good size, color and quality. I prefer the latter, but it is not so good where quality is considered important.

Elberta is as hardy in fruit bud, or more so, than the Crawford type, quality not so good; tree often badly affected with leaf curl, but, strange to say, seldom causes tree to cast its fruit. As valuable among peaches as Ben Davis among apples, and I have sold the fruit from a single tree (five-year set) for \$6 in the orchard (at \$1 per bushel).

The Crawford type of peaches all resemble very much. All rather tender in bud, but of very best quality, and sell for the highest prices. With me they have paid well. They are Early and Late Crawford, Fitzgerald, Globe, Wheatland, Mary's Choice, Reeves' Favorite and several others, but the varieties mentioned have always paid best.

Gold Dust and Lemon Clings are the best yellow clings. The former is an exceptionally nice growing tree and a heavy bearer of very choice fruit.

Belle of Georgia, Family Favorite, Mount Rareripe and Old Mixon Free bear very heavily of nice fruit and are very hardy in tree and fruit bud.

Heath Cling is a very sweet white peach. Very valuable.

Willet is a large yellow peach, very late, and sells well.

Blue is late, of poor quality, often cracks badly, and seldom ripens.

VARIETIES OF PEACHES FOR PLANTING IN CENTRAL INDIANA.

BY S. K. HENBY, GREENFIELD.

I would recommend the following:

Early—Triumph, Alexander, Tong Pa.

Midseason—Champion, Crawford's Early, Elberta.

Late—Crawford's Late, Old Mixon Free, Old Mixon Cling, Stump, Globe, Smock Freestone.

PEACH GROWING FOR NORTHWESTERN INDIANA.

BY H. H. SWAIM, SOUTH BEND.

Peaches are but little grown in Northwestern Indiana on account of the severity of the climate. The following are among the most desirable varieties: Elberta, Crosby, Champion and Triumph.

President Stevens: We will by consent have the discussion of the varieties recommended at the close of the lists. We next will have plums.

VARIETIES OF PLUMS RECOMMENDED FOR COMMERCIAL PLANTATIONS.

BY WILBUR C. STOUT, MONROVIA.

I have been making a specialty of select varieties, of fine quality, and have paid little attention to native plums; however, Robinson and Wild Goose bear well and sell well at low prices—the plum for the average farmer. Niagara is the prettiest plum of the European type I have ever fruited, and sold best. Unfortunately, trees generally of this type have bodies killed by severe freezing or sun scald. I don't know which it is; very probably both.

Last year we sold our plums for about \$200, and my books show Abundance, Burbank, Gold, Chabot and the Damsons to have brought 88 to 90 per cent. of the amount, although they occupied about one-third of the ground.

If I was going to set a commercial plum orchard I would set those named above, and in addition, Climax, a new Japan plum, sent out by Luther Burbank some three years ago. It is very hardy in tree and fruit bud, and the largest and finest in fruit I have every seen, but trees will sell high for a few years.

America is a very large hybrid plum, quality about like Robinson; very heavy bearer; size two to three times as large as Wild Goose, and bears as heavily as Robinson. It should be borne in mind that the native type of plum must be planted on a commercial plantation for profit, unless the planters will jar for curculios three to five times per week for two and one-half to four weeks.

We have several other new plums, but none better than the ones mentioned, unless you want an early kind; then set Red June. Faults, very poor quality; tree subject to black knot.

President Stevens: Our next is varieties of cherries.

VARIETIES OF CHERRIES FOR SOUTHERN INDIANA.

BY G. W. TRUEX, LOCKMAN.

I will have to make some apologies, not having prepared a paper.

Cherries ought not to be left without a word of encouragement for market purposes. In my own immediate neighborhood I have never known a commercial orchard. Every farmer has a few cherries, different varieties, early and late. Some have proven good, some have not. From what I know about growing cherries, they certainly could be grown

on a commercial scale and be profitable. I don't see how it could help but be a profitable crop. There is always more demand than we can supply. There is some one always wanting cherries. In the spring of the year nearly everybody I meet is wanting to know if I am going to have cherries to sell. Our list of cherries that are reliable is small. They are English Morello and the Early Richmond. The most reliable cherry is the English Morello. They are the hardiest cherry I ever had anything to do with. It is the most reliable cherry I ever saw, but my knowledge is limited to this part of southern Indiana. If I were planting a number of trees, they would be English Morello.

VARIETIES OF CHERRIES FOR SOUTHERN INDIANA.

BY GEO. W. W. M'INTOSH, REGO.

I am asked to name the best varieties of cherries for Southern Indiana. I can not at present answer for all Southern Indiana, but give the names of those doing best for family or commercial purposes, so far as I have been able to observe. Of acid varieties for early fruit, Early Richmond is the best we know. Next in ripening, I think, the old Black Morello and Montmorenci are best, or as good as any, English Morello is also a good cherry. May Duke and Late Duke will probably represent the best subacid cherries. Governor Wood and Belle de Chatenay are the best sweets we know.

President Stevens: Varieties of quinces is our next topic.

QUINCES FOR NORTHERN INDIANA.

BY J. C. GROSSMAN.

In the Revised Catalogue of Fruits recommended for cultivation in the various sections of the United States by the American Pomological Society, the following varieties of quinces are recommended for district No. 2, of which Northern Indiana forms a part. Champion,** Orange,** Rea,** Meech,* Missouri Mammoth,* and Pear.* The first three being double starred and the three latter having one star. Of these we have fruited Orange, Meech and Champion, they ripening in the order named. Missouri Mammoth is bearing this year for first time with us. With what we have seen and heard of this variety and our personal experience

with the other varieties mentioned, we would place Missouri first, Orange second, and Meech third, in a list for a commercial plantation. Champion is a good winter variety, but is often frosted before ripe, as its season of ripening is about from middle to last of November.

President Stevens: Now we have reached the topic of grapes, and Mr. Sylvester Johnson, one of the most experienced growers, will give us his list.

Mr. S. Johnson: Before presenting my paper I should like to make a statement. The Secretary wrote me he would like to have me prepare papers on Grapes and Walks. I laid this letter aside. The program that was sent me was lost. My paper is on grapes generally. I will go ahead and read it or not just as you say.

President Stevens: Go ahead and read it.

GRAPES AND GRAPE CULTURE.

BY SYLVESTER JOHNSON, IRVINGTON.

Grape vines will do well in any ground of average fertility, well drained either artificially or by nature. A southern or eastern slope is desirable. To succeed well the ground should be thoroughly plowed, subsoiled and pulverized to the depth of twelve to fifteen inches. Any ground sufficiently fertile to raise a good corn crop will produce good grape vines, if other conditions are favorable. If ground is not thus fertile it must be made so by an application of barnyard manure or wood ashes.

In selecting vines secure, if possible, well rooted, thrifty one-year-old vines. These can be had at a much less price and as a rule will give as good if not better satisfaction than those two years old. If vines have been purchased a great distance away and the roots have become dry, place them at once in a vessel of water and let them remain until you are ready to plant them. Grape vines may be planted either in fall or spring. Fall I think preferable for the reason that the weather is generally more favorable, the ground is more easily worked and is likely to be better pulverized, and that the earth is settled around the roots, and the plant is more likely to start to growing earlier in the spring. In planting spread the roots in the directions they seem to want to go, never allowing any root to cross or touch another. Do not place the roots more than two inches under the surface, as grape roots incline to grow near the surface. Mulch well either by keeping the surface well

pulverized or by covering the soil for some distance around the vine with coarse manure, straw, leaves of trees or some other suitable mulch. I have found coal ashes an excellent mulch as well as a fertilizer. I prefer the latter method for the reason that in digging to pulverize one is apt to interfere with the roots. Frequent cultivation by stirring the soil is very important, but care must be taken not to stir too deeply, in order to avoid the interference with the roots.

It is a great mistake that many make to try to grow grape vines in a sod or to allow weeds or grass of any kind near them. It would be just as senseless to do so as to try to raise corn with such surroundings. The first year allow but one vine to grow from the roots, and the second year cut back to two buds. After both have fairly started pinch off the weaker one and allow the other to grow as you did the first year. If the vine makes a growth this year of from ten to twelve feet cut back to four feet and you will have some fruit next year, but if it grows from two to six feet cut back to two buds as you did at the beginning of the second year. Make your trellis the fall of the second year. Plant your posts three feet deep, leaving eight feet above ground. Use No. 10 wire, place first wire three feet above ground and the other two wires two and one-half and five feet above the first one. Posts may be twenty-four to thirty feet apart. Adopt any method you please to make the end posts immovable by the heavy weight they will have to bear. Now your vines are supposed to be on the trellis, tied to the wire with some kind of soft string. The only summer pruning needed is to pinch off all the laterals. This is important. If not done the nutriment required to make the lateral grow will be just that much loss to the bud at its base, which is the conservatory for that which gives life and vigor to cluster of fruit which comes from the bud next year.

After the frost has caused the leaves to fall the pruning is to be done. It is much better to do this in the fall than in the spring. One has more time and better weather generally in October than in February or March. When left to prune during the last month named we are apt to be busy preparing for spring work and allow the time to pass to the season that bleeding of vines will follow pruning. But the most potent reason for fall pruning is in laying down your vines for winter protection you have much less work to do when pruned than if they are unpruned.

On the subject of winter protection, I desire to impress upon this audience its very great importance. If you desire a large crop of good grapes you must protect all your vines. Of course there are many winters that will not kill many varieties of grapes. But all grape vines all winters will give better satisfaction if well housed than if left on the trellis. You farmers need not be told of the great difference there is between a calf or a colt that has been wintered in a warm and comfortable barn and those which have had to stand out in the mud, snow and cold winds, and how much more vigorous and healthy are the former than the latter.

I am firmly convinced that the same laws, to this extent, govern grape vines. If this be a true theory, men have no excuse for not giving this protection. It takes but little time to cover all the vines that are ordinarily found on one man's premises. My man and I do this work in one day on 150 vines. The manner of giving this protection is very simple and inexpensive. It is done as follows, to wit:

I go to a brush pile and secure forked branches, which I prepare like the one I hold in my hand, lay two vines towards each other and drive this forked stick in the ground over them. This holds them to the ground. Then I cover with any covering I may conveniently secure, such as straw, corn stalks, tomato or potato vines or forest leaves. The last named I consider the best for the reasons that they are always at hand and when decayed make a leaf mold around the vines which make a fertilizer more congenial than any other, being nature's own fertilizer.

In the spring so soon as danger from freezing is passed, I remove the covering, tie my vines to the wires and spray with Bordeaux mixture about the time the buds begin to swell, not later. A second spraying is given just after the bloom drops off, and a third just before the fruit begins to ripen. If I want very fine grapes for table or exhibition I sack the largest bunches, using two-pound sacks which are purchased at eighty cents per 1,000. Grapes thus sacked are safe from the depredations of bees, birds or fungus.

In regard to varieties, I can only say that there are so many and so many different tastes that I feel a timidity in making any suggestions, but will venture just a few: I am very frequently asked this question: "If you had to be restricted to any one variety, what would it be?" My answer now is Johnson's Seedling. Formerly my answer was Brighton, evidently the parent of the former, which only excels its parent in hardness. There is only one other of the newer grapes that I deem worthy of special mention, and that is the Brilliant, one of Munson's Seedling and the most promising new grape I know of.

A Member: Mr. Johnson, what three would you recommend for market?

Mr. Johnson: Brighton, Concord and Niagara.

VARIETIES OF GRAPES FOR NORTHERN INDIANA.

BY C. P. BRADLEY, SOUTH BEND.

While we are able to grow many varieties of grapes in the north part of the State, there are a great number of varieties that are better adapted to the south part. Varieties that do the best and are the most profitable in the north part of the State are as follows: Black—Worden, Concord,

Moore's Early, Hartford, Champion, Clinton, Eaton, Telegraph, Cottage, Ives' Seedling. White—Niagara, Moore's Diamond, Pocklington, Empire State. Red—Brighton, Delaware, Agawam, Lindley, Woodruff Red, Oneida, Perkins, Vergennes.

While those varieties mentioned herewith are among the best known to be under cultivation, there are a number of varieties that are rather too late for the north, that do exceedingly well in the south part, such as Catalpa, Goethe, Jefferson, Lady Washington and many others.

President Stevens: We now pass to that most delicious of all fruits, the strawberry.

BEST VARIETIES OF STRAWBERRIES FOR CENTRAL INDIANA.

BY EVAN B. DAVIS, CARTERSBURG.

With such fruits as the apple, peach, plum and pear, which, when set out, are expected to stand ten, twenty or fifty years, it is very important to select varieties especially adapted to the soil, climate and general conditions. The government has issued a bulletin on the apple, giving name of all leading varieties with the section of country in which each does best. For example, some of the eastern states produce the Baldwin and Greening to perfection, while it would be folly to plant them for commercial purposes here. Peaches and plums are also particular as to soil and climate, but can be brought into bearing so soon that one can experiment with different varieties. Even with blackberries, and raspberries, certain varieties are especially suited to certain sections and are established and recognized standards. But the conditions are different with strawberries. Climate does not seem to make as much difference as soil and treatment. Some varieties which answer every requirement and are in every way satisfactory to me, will prove disappointing and worthless to a neighbor, who has different soil and location but gives same treatment. Often in comparing notes, after testing new varieties, results will be exactly reversed when conditions are apparently the same, and often in a three years' test on same plot, results are reversed. But generally, after three crops, the grower may safely discard and retain those which do best on his soil and under his treatment. After an experience of twelve years in growing strawberries for market and private use, during which time over seventy-five varieties have been tested under all conditions, and after extended observations, I feel competent, in at least a small degree, to name some of the best varieties for central Indiana. When the productiveness, vigor of plants, quality and appearance of any berry sur-

passes the Haverland and Bubach or Warfield, then the ideal berry will have been found. Succeeding as they do on nearly all soils and under adverse conditions, and over such a wide area, makes them a general favorite. Being imperfect bloomers is the only serious objection, but they may be pollenized with Bederwood and Marshall, an early and late bloomer, and we have a quartet hard to beat.

If the Haverland, Bubach and Bederwood are too light colored or too soft, then some of the newer varieties may be substituted. Of the scores recently brought out, the Sample, Nic Ohmer, Wm. Belt and Marshall are receiving much deserved praise, and will, no doubt, open a new era in strawberry culture. While much depends upon the variety, we should not lose sight of the fact that to succeed we should have a thorough knowledge of plant life and the laws which govern the development of fruit, and by applying this knowledge in further perfecting these leading varieties, astounding results would be reached in strawberry culture.

VARIETIES OF STRAWBERRIES FOR NORTHERN INDIANA.

BY H. W. HENRY, LAPORTE.

The answer to this subject is almost as varied as the views of a kaleidoscope. No two varieties will do the same for two different growers, although only a fence may be between them. There are as many different varieties of growers as there are of berries, and each has his peculiarities, the same as the berries. The grower has much to do with the success or failure of any variety. A poor variety in the hands of a good grower may bring better results than a good variety under the treatment of a poor grower. There are many, many things that enter into a successful strawberry patch besides the variety of berry. The first of these is a successful man. A man of intelligence, industry, business, and who loves his work and will grow berries not only for the money there is in them but for the love of the berries themselves. A man who hates a foul weed and will not allow one to enter his patch and associate with his plants any more than he would a bad child with his children. A man must be able to see pleasure in his strawberry patch whether it is counted by the row or acre from the time it is set until the last berry is in the box on its way to market. Such a man will make a success of most any of the standard varieties whether he lives in Northern Indiana, the garden spot of the world, or any other old place.

The right kind of a man can not always make a success unless he has some of nature's assistance, and the most important of these is the right kind of soil. We have in Northern Indiana four distinct kinds of soil:

The sandy, the heavy clay, the marsh and the mixture, or the alluvial soil, composed of sand and clay mixture. This is the only proper soil for successful strawberry culture, soil that is easy worked, pliable, and that is capable of taking and holding fertilizers, and that can be worked in almost all kinds of weather, soil that is good for all kinds of cultivated farm crops. With such soil as a foundation, a man should make a success of strawberry culture.

There are two kinds of strawberry growers in our section of country: The strawberry farmer and the strawberry grower. Any one who visits South Water street, Chicago, will see that the strawberry farmer is in evidence to the great detriment of the business. Our neighbor on the north furnishes most of these strawberry farmers, where the poor soil and the poor grower makes the poor market, the poor prices, and demoralizes the business in general. I have kept close tab of the Chicago market for several years, and I have noticed that as soon as the Michigan berries come on to the market the price goes down, down, down, until the bottom drops out, and any up-to-date grower can see the reason. Too much poor fruit. I can safely say that one-half of the berries that go on to the Chicago market would be better in the bottom of Lake Michigan. I saw berries picked in old stained boxes and old weather beaten crates, and the berries compared favorably with the clothes they were in. Michigan, the home of the "pedigree," ruining all the strawberry growers tributary to Chicago by the inferior class of fruit put upon the market, either as the result of poor culture, poor soil, or poor pedigree. What does varieties count against such opposition as this? First teach the man how to grow berries, and he will have no trouble in finding the varieties that are best suited for him to grow. After you have the man and the proper soil to grow them on, and the right methods of culture, you can begin to think about varieties. The business grower will soon find the varieties best suited to his locality, his methods of culture and the wants of his customers, the same as the business man knows what kind of goods his customers want and that he can make the best profit on.

The strawberry grower that relies upon his neighbor's advice or what the catalogues say in reference to the varieties to plant, will never make a success of his business. Experience is the only teacher here. Every grower must find out for himself what does best on his soil, and then make the best use of it by good culture, proper restrictions and good care.

There are several qualities that every variety must have to make it profitable. The first of these is productiveness. No variety is worthy of consideration that will not produce a sufficient quantity of berries, and the more the better, provided they are marketable. The second qualification is beauty, a good looker. For family use quality would come before looks, but for market looks comes first. For market I will take the Ben Davis type of a strawberry. Productiveness, good looks, a good keeper or shipper, one that takes the eye and catches the pocketbook. A

berry that will go onto the market with good size, good color and good condition will bring the price regardless of its quality.

In a home market direct to regular customers, quality should have considerable consideration, but then it is pretty hard to convince a customer that he should buy that crate of berries for their quality along side of a crate of large berries that have the size but not the quality. He will always think you are keeping them for some better friend than he is. The growing qualities of a strawberry should be taken into consideration. A healthy plant, free from disease, and that will withstand dry and cold weather, and will make a business bed. Different kinds of soil will require different varieties of plants. On low marsh land I would advise the Parker type of plant; on light sand, the Wilson type; on heavy clay, the Marshall or Gandy type, while on alluvial soil all the varieties can be tested and used to suit the locality and the habits of the grower. On my soil the Warfield seems to meet more of the general characteristics of a first class berry than any other. Its size, color and quality comes nearer to a first class berry than any other; yet in the hands of a careless grower it is a failure. It requires good soil and great restriction in plant making and needs to be properly pollenized. The next most productive berry is the Haverland. It has the size and productiveness but lacks color and solidity. The Lovetts and Clyde are the next most productive, but lack color and good looks.

In the newer list of berries I am better pleased with Senator Dunlop than any other. It has done well with me. It has good color and the general characteristics of a good berry. The next would be Klondyke and Aroma. For moderately late berries these two are the best I know of, and a grower will make no mistake in giving them a trial.

My advice to amateurs would be to start with the standard varieties and then each year experiment in a trial bed a few different kinds until you find the best there is for your soil and methods of growing, and by that time, if you get to be a strawberry enthusiast and fall in love with the business, you will keep on looking for perfection to the end of the journey and perhaps will be no nearer the goal of perfection than when you started.

My planting for market would be about as follows:

Warfield	40 per cent.
Lovetts	10 per cent.
Haverlands	10 per cent.
Aroma	10 per cent.
Senator Dunlap.....	10 per cent.
Klondyke	10 per cent.
Other varieties.....	10 per cent.

STRAWBERRIES FOR NORTHERN INDIANA.

BY M. H. RIDGEWAY, WABASH.

Taking into consideration the great variety of soils to be found in Northern Indiana, and also the susceptibility of the strawberry to be influenced either favorably or unfavorably by special soil conditions, we find we have a question to answer upon which it is difficult to reach positive conclusions. Certain it is that no one variety is best when grown upon all our varied soils. Different methods of cultivation also often make or break the reputation of variety. Another important factor in determining which varieties are best, is the question: For what special purpose are they being grown? For home use, a nearby market, or one that makes it necessary for the fruit to be handled by transportation companies and commission men? If for home use, then individual tastes and ideals will have to decide which varieties are best. If for a nearby market, then we may select varieties that are too soft in texture to be safely carried to distant markets, and call them best. But for distant markets we must have varieties that will stand the rough handling that is usually given them and still look fairly well when placed on sale.

The best that I shall attempt to do in answering the question of "Best Variety of Strawberries for Northern Indiana?" is to name my own preference. First stating that my soil varies from the rich dark brown of the creek bottoms to the stiff heavy clay soil of the hills. For first early, Superb and Excelsior; for midsummer, Warfield and Sample; for latest, Ridgeway and Robbie. As all our fruit is sold on the local market beauty and quality count for more than firmness.

Other growers whose soil and location are different from my own, have a long list of dependable varieties to select from. We have the Haverland, Crescent, Lovett, Greenville, Glen Mary and Clyde. Bubach is still a favorite with many; Parker Early with others who have soils that meet its special needs; Barton's Eclipse by many who do not like the Haverland, and nearly every locality has some one variety that is considered best. Amongst the many new varieties which we have fruited the following are the most promising: Miller, Dunlap, Uncle Jim (Doman), Rough Rider, Marie and Monitor. The last two belong to the Crescent class.

DISCUSSION.

President Stevens: What is the largest yield per acre that you have known in your part of the county?

W. C. Reed: Three years ago I had one patch of two acres that made 700 crates. I don't know how many dollars. I think the average that year was \$1.50 per crate. That was an exceptional year.

President Stevens: What was the largest yield you had, Mr. Davis?

E. B. Davis: I can not speak for other growers for that season of the year, I am always too busy to know of any body else's business, but my own yield was \$225 per acre. Only had three varieties, Haverland, Buebach and Biederwood.

H. W. Henry: I sold some Warfield strawberry plants to a gentleman who planted them along the side of the hill. When he saw me the next year he says, "Mr. Henry, those Warfield plants you sold me are no good at all." The next year one or two of the plants got down into some rich black dirt. The next time he saw me he says, "Mr. Henry, those Warfield's are the finest strawberries I ever saw. I hope you will excuse me for condemning them so soon."

President Stevens: We will now hear the list of raspberries and blackberries.

RASPBERRIES FOR NORTHERN INDIANA.

BY SNEAD THOMAS, MARION.

As I have almost quit growing raspberries in a commercial way, I do not feel qualified to say what varieties to plant for commercial purposes to secure the best results in Northern Indiana. However, as I have been assigned to that subject, I will give some of the varieties, that is, the most extensively planted and thought to give the best results here in our county in North Central Indiana.

The soil and location has a great deal to do with the producing of a paying crop of raspberries. Then, again, the man at the helm has as much or more to do with the successful growing of raspberries as the soil or location. The raspberry has a great many wants to be supplied, and the man that anticipates its wants and supplies them just at the right time that it needs them, is the man that succeeds, even if the soil and location may appear to be against him. Here in Grant County we find a sandy soil, or a soil of a cold, heavy clay nature, or a black alluvial loam which is not very good for growing raspberries. We find in one locality a grower who is pinning his faith to one variety, while another grower, if not in the same neighborhood, only a few miles away, is succeeding equally as well with another variety.

As to varieties.—Of the red variety there is but few of them grown, the London taking the lead of all others, followed very closely by the Cuthbert, and that by Miller. One grower who is making a specialty of

growing red raspberries places the Miller ahead of the Loudon for profit.

Of the purple varieties.—At one time they were grown to some extent, but have been dropped out of the list of varieties on account of their unpopular color.

The black caps are more extensively grown in our county than all others. I think that nine-tenths of all raspberries grown are the black varieties, although our growers are increasing their plantings of the reds. As to the varieties of black raspberries, the Gregg seems to be the standby, fully one-half of all the raspberries grown being of that variety. The Cumberland is doing well, and is being more extensively planted than formerly. The Munger is succeeding very well, and I am of the opinion that it is going to supersede the Gregg to a great extent, as it seems to resist the attack of the anthracnose more than that variety. Conrath is fairly productive of firm fruit, but is not planted to any extent with us as yet. We have one grower that believes the Earhart easily leads all varieties of the blacks.

BLACKBERRIES FOR SOUTHERN INDIANA.

BY NELSON C. WOOD, PECKSBURG.

The blackberry is one of the blessings bestowed on man that more people appreciate as a sustenance than either the raspberry or the strawberry. I can say I have had considerable experience in growing and marketing blackberries, but must say my experience in testing varieties has been limited. My theory has been to let well enough alone. I can say, however, that I believe in a progressive life in all the branches we are occupied in, not excepting that of Christianity.

The blackberry that I have had the most experience with, is the Snyder, a berry that is well known. I can say where this berry has been planted, cultivated and pruned rightly it has given satisfaction. It has for one of its good qualities, hardiness. Wherever it is in good culture it is almost as sure of a crop as the sun is to rise. There are no off years in it, I can heartily recommend this variety. The berry when fully ripe is very good to best, and its productiveness is not excelled. We have cultivated this variety for sixteen years and can say we have had a paying crop every year until last year, and had then an enormous crop on the canes, but owing to the hot winds of last July, the berries and part of the canes were completely cooked, and the canes were so disabled that it affected this year's crop. This was the greatest disaster to our blackberry plantation that we have ever experienced. I never have detected that the winters have had any bad effect on this variety.

I would suggest for varieties: Lucretia Dewberry, for early; Snyder, for medium, and Taylor's Prolific for late.

The Lucretia Dewberry is a very handsome fruit and commands higher prices than any of its sister varieties owing to its earliness, good quality and uniformly large size.

Taylor's Prolific will compare very favorably with the Snyder in good qualities, though late in ripening, but if I was to cultivate but one kind, it would be the Snyder.

C. H. Hobbs: I would recommend for Central Indiana the following blackberries: Early King, Snyder, Taylor, Ancient Britton and Eldorado. The Early King ripens first, followed by Snyder, Ancient Britton, with Eldorado. The Taylor is hard to gather.

E. Y. Teas: My list is Snyder, Taylor and Ancient Britton.

H. H. Swaim: Blackberries in the northern part of the State are like peaches, very few varieties planted for commercial purposes. I find none that is certain except Snyder and Britton. We get better prices for Snyder and Britton. I consider Snyder the best blackberries, as far as quality is concerned, that I can get. Berries don't have to be good in quality, just so they stand up in the box and look nice, they will sell. That story we have had told several times this afternoon.

President Stevens: This completes the program for the afternoon. This evening's session will be held in ——— Hall, in the city, beginning at 7:30 o'clock. We will now adjourn to meet this evening.

Adjourned.

TUESDAY EVENING, 7:30 P. M.

President Stevens called the meeting to order, after which the Franklin Opera Orchestra played some excellent pieces of music.

President Stevens: If you will please come forward here in front we will begin our program by calling on Prof. James Troop, of Purdue University, who will give us a paper on "The Seventeen-Year Locust."

SEVENTEEN-YEAR LOCUST.

BY PROF. JAMES TROOP, PURDUE UNIVERSITY.

Ladies and Gentlemen—I have not prepared any regular speech for this occasion, as I expected to come on this afternoon. I have prepared a few points that may be of interest, in regard to the appearance of the seventeen-year locust during the past summer.

I suppose that the most of the people in this audience do not really know that the seventeen-year locust is not a locust at all, that it is a large bug. Now, that may seem to be of trifling importance, but when we come to solve further differences in insects it becomes of a great deal of importance whether it is a bug or something else. A bug, as we understand it, has a different kind of mouth part from other insects. As to its name, seventeen-year, of course this implies that it requires seventeen years for its development. For example, the adult insect appeared this summer, it lays its eggs, its young goes into the ground and it requires seventeen years to complete its development—it remains in the ground seventeen years before the adult makes its appearance. Somebody asked in regard to the damage which this insect does. I find there has been considerable annoyance in regard to that. From the appearance of its mouth parts the insect is not believed to eat anything, in fact it does not take very much food after it comes out in the adult state, for the reason that it does all of its eating in the young state, the most of the damage done by the insects is done by its egg laying, and the most of you know how that is done, and the result of it. Most of us remember that last year a good many articles appeared in the press advising against planting fruit trees last fall or this spring on account of the seventeen-year locust, because of the ravages that would take place in young trees. In order to get at the facts of the case, and to get some notes on the cicadae and to have them on records for future use, I prepared circulars and sent out to every county in the State, to the Secretary of the Farmers' Institute, and to others. I sent out 150 circulars on return postal cards, with the questions printed on the return postal, so all that was necessary to answer the questions was to drop the card in the post-office. Those of you who have not had any experience in sending out notices of this kind don't know what you have missed. Out of the first 150 I received fifty, 100 never showed up. Then I sent the second lot, and twenty-five of that lot came back, and then I sent a third lot to the counties I had not heard from, and the last one of the third lot returned yesterday, so you see I have not had much time to prepare these statistics. From these cards which I received, I find that the locust appeared in eighty-three counties in this State; seven counties only in the State have

reported no visits from the locust this year. These were Adams, Jasper, Lake, Newton, Laporte, Randolph and Tipton. Why they should give Tipton the go-by is a question. The counties all around it have had the locust, and in most of them they have been numerous. They have had no locusts in Tipton County this year. That has been attributed to the fact that Tipton County contains very little timber and is very level; perhaps that is the reason. If there is any one here from Tipton County and knows different, I wish he would speak. [I was suggesting to our neighbor here that Tipton County was under water seventeen years ago.—Hobbs.] In some of the counties, especially in the north, they are reported as being few in number. In most of the counties they were numerous. This decrease in numbers, I believe, is due to the constant cutting off of the timber, which has been going on for the last seventeen years. I have heard many of the old settlers say that while they had the locust in their county they were not as numerous as they were seventeen years ago, and they were not as numerous then as when they made their appearance before that, so in time we will have but very few of them. The date of appearance is from May 12th to June 1st, a period of about twenty days. It takes about twenty-one days to go from the south to the north of the State, and they range about the same in their disappearance. The adults remained thirty to forty days until the last one disappeared.

Twenty counties reported more or less damage to fruit trees. I laid special stress on this, because I wanted to see just how much there was in the warnings that were circulated by the newspapers. I didn't believe that the locust would do very much injury, and I so stated, and I wanted to see whether they did so very much injury or not. Sixty-two counties heard from reported no damage at all to fruit trees. Some of them reported damage to fruit trees, but I believe, if the matter had been investigated carefully, that a great deal of the damage reported due to locusts was no more or less than twig blight, of which we had a great deal over the State this year; this resembles the work of the locust. The kinds of fruit trees which were injured were the apple, peach and the plum, and in that order, as reported on these circulars.

The question relating to the newly set orchards—did they injure newly set orchards more than older orchards? Sixty-seven of these counties reported no injury whatever to young orchards, and five of them did not report at all. So you see they did very little injury to trees that were set last spring. From the press scare, farmers were very much afraid, and failed to plant trees last spring on that account. Now, this summer, I am asked the question very frequently, Is it safe to plant trees this fall? I have been pretty well over the State and noticed nurseries this summer, and I find, with but very few exceptions, nursery trees were not injured at all, to speak of. I noticed where a young orchard was situated near timber the trees have been injured somewhat. So that the warnings that were sent out last year were practically groundless, as I

very well knew beforehand, but reports of that kind go very rapidly, and it is hard to overcome their effects. The injury that has been done by the seventeen-year locust to orchards during the past season, I find to be very slight indeed. It does not amount to anything, practically. The fruit trees that have been injured, the most can be trimmed off, and no harm done to them.

DISCUSSION.

President Stevens: Our pear orchards are located on land that seventeen years ago was on clay soil or was mixed. The locust came out of the ground all over the orchard. There was timber on two sides of the orchard and the locust left the orchard and went to the timber.

Professor Troop: That is very frequently the case. They go to the large trees and lay their eggs. However, I saw one small nursery where timber was on three sides of it, the locust came out of the timber and went to the young orchard. Nice place to lay their eggs.

Those counties that reported no locust we may doubt their return. They may have none at all hereafter.

A Member: Did anybody report any benefit derived from the locust being here? I have not heard of any.

A Member: They afforded food in abundance for birds. I never saw a bird in the cherry trees. The birds did not bother the cherries.

S. Johnson: The birds were very numerous this year. There were more birds around our place than we had for twenty years. The English sparrow and all birds got in their work this year. Where there were plenty of birds the locusts didn't remain long. In our locality you could gather them by the bushel, but the birds soon cleaned them up.

A Member: Is it true, Professor, that Indiana has more locust than any other State in the Union?

Professor Troop: I think so; they extend over a greater territory in Indiana than any other State.

Jos. A. Burton: I am afraid we will get the idea from Professor Troop's reports that the locust is almost harmless. Such has not been my feeling toward them, and I have reason to feel otherwise. Seventeen years ago I had an orchard of twenty-five acres, 1,005 trees, and the appearance of the locust there caused me to have to plant 1,000 of these

trees again. That was seventeen years ago. The locust was more abundant then than this year. This year the trees in our orchard were pretty well used up, nearly all of the trees were stung from, say, about one-half way from top down, and very frequently four rows of sting. The tops of those trees were ruined. Mr. Hobbs said: "Let them go; next spring cut them off, and they will be all right." The locust is not a harmless insect at all; they do immense damage.

Professor Troop: I don't mean to say they are harmless entirely, but I mean to say we ought not to jump at conclusions, because somebody who does not know what he is talking about advises in the papers that they are going to ruin everything they come in contact with. The damage has been slight, when you take the whole State into account, and from what we might have expected from the reports that were sent out, there has been but little damage. Considerable injury has been done, but I think few trees have been damaged beyond repair.

A Member: I would like to ask the professor the proper name of the seventeen-year locust.

Professor Troop: Cicada.

H. W. Henry: There was only one kind of locust in Laporte County, and it had a "W" on both wings. I would like to know what that meant.

Professor Troop: It meant it was a seventeen-year locust.

WEDNESDAY, AUGUST 13, 9 O'CLOCK A. M.

President Stevens: The secretary wishes to make some announcements.

Secretary Flick: Those who have not enrolled, please do not forget to do so this morning, and we will be pleased to have you all join the Society. The membership fee is fifty cents to members of local societies, one dollar to others.

President Stevens: We will now resume the work of the program, and first we will have the general subject of "The Apple from the Nursery to the Consumer," under the different sub-topics, the first of which is "Location and Exposure; Soils." Mr. Hobbs, of Bridgeport, will introduce the subject.

THE APPLE—BEST LOCATION, EXPOSURE AND SOIL.

BY C. M. HOBBS, BRIDGEPORT.

It is important that the commercial orchard be located near a good market, or in an apple-growing section with good shipping facilities. Experience has shown us that where large quantities of fruits are grown, better transportation and better rates are secured. Buyers visit such localities, competition is secured, and the best prices obtained. In the large fruit-growing districts, co-operation may obtain to advantage in selling, grading, packing, shipping and in cold storage.

In our State the matter of exposure is not a very important one. When the exposure is very steep, the southern will be the warmer, and the tree will start earlier in the spring, fruit ripens earlier, and is more highly colored.

Any of the clay soils of our State that are sufficiently fertile, holding sufficient moisture, but not in excess, will grow, profitably, many varieties of apples, provided other conditions of success be observed. Light, dry, sandy, gravelly or black soils are not desirable for apples; in fact, for any of the fruits.

I am inclined to the opinion that the yellow and red clay soils of Indiana are unexcelled in the production of certain varieties of apples, notably Winesap, Rome Beauty and Grimes Golden. I have frequently seen representative collections of apples from all parts of the United States, and have never seen these varieties from Indiana excelled.

That Southern Indiana Winesaps took the world's premium at Paris is evidence of this fact. The statement was recently made that Southern Missouri and Northern Arkansas were the finest apple-growing sections in the world, and one of the principal reasons for this was that the soils are rich in iron. We have these conditions in the red clay soils of Indiana.

With clay soils containing ample but not excessive moisture, plenty of readily available fertility, planting of the right varieties, thorough cultivation and care, I believe we can grow apples here in Indiana to as great perfection as they are grown anywhere in the world.

President Stevens: We will next hear Mr. Campbell.

CHOICE OF SOIL, LOCATION AND EXPOSURE FOR THE COMMERCIAL APPLE ORCHARD.

BY GEO. P. CAMPBELL, BLOOMINGTON.

I can't hope to say anything on this old subject that will be new to any member of the Indiana Horticultural Society, but it may be the means of bringing out a discussion that will be of more benefit than anything I may say on the subject.

I have had occasion to ride over considerable of my own county this summer, and I have noticed a good many orchards, some on low ground and some on the hilltop. Some were thrifty and doing well; others were sickly and stunted, and it seemed that the location or soil had very little to do with it. I asked some questions in regard to the different orchards. Some would say in regard to the sickly ones that they had got poor trees from the nursery and the nurseryman and the agent would generally get a blessing. Others said the children had left the gate unfastened, and the cows had got in and done the pruning, which was not usually a very satisfactory job. There was always some excuse for the trees not showing up better.

In regard to the other fellow who had the thrifty orchard, he would tell of the care he had taken in putting out his trees, how he had cultivated and fertilized them, and he always seemed proud of his orchard.

After being assigned this subject, I began to study the question more than I ever had before, and I asked myself the question, Is there not as much in the man as in soil and location, after all? If he loves his trees and the work connected with making them thrive, he will make a success if the soil and location are not the best. I will say, however, that I am not much of a believer in the idea advanced by some that any poor hillside will grow good apples.

There are very few farmers who have an ideal place for an extensive commercial apple orchard. I would select a north and east slope of elevated land, naturally well drained, if possible. The soil should be sufficiently fertile to grow good wheat or corn. The red clay limestone soil that we have throughout the southern part of the State seems best adapted to the growing of fine apples. It gives better color and flavor than sandy or the black, loamy soils.

I will give my reasons for selecting a north and east slope. The soil is usually stronger and more porous, holding moisture better. The sun does not have the effect of thawing the sap on the southwest side of the trees during a cold snap in winter, sometimes causing the bark to burst, which is sure to ruin the tree. The trees remain dormant longer in the spring so that the fruit buds are not so liable to be killed by the late

frosts. I have often noticed that the forest trees on the north slope were larger and more thrifty than those on the south. The finest walnut, poplar and oak are to be found on the north hillside. Trees that stand fair to Old Sol's rays are more liable to be hollow and have dead and damaged limbs, while the same kind of a tree on the other side of the hill will be solid and thrifty.

It is well to study nature, and where you find nature doing the best for trees, there is a good place to plant the apple orchard. There are not very many that can have just such soil and location as that I have described, and some may think I would not have them plant an orchard, but such is not the case. I think any one who loves trees and good apples will have them, for if nature has not provided a suitable location, he will use artificial means. He may have to drain the soil and study its composition to find out if it is lacking in any of the elements that the tree needs to make well-flavored and highly colored apples.

I have noticed that once in a long while there will be a good apple crop on low bottom lands and none on the hill land. A few years ago there was as fine apples grown on some of the lowlands of Monroe County as I ever saw, while they were practically a failure on the higher soils.

I have a friend who owns two farms, one on what is known as Salt Creek bottom, the other is about four miles from any watercourse and on elevated land. Last year he had a good crop of apples on the elevated land and none on the bottom farm; this year it is just the reverse.

It may be that I have not stuck as close to my subject as the ones who gave it to me expected or wished, but I hope the subject will be thoroughly discussed at this meeting, for I believe there is no State that can grow finer apples than Southern Indiana.

LOCATION AND EXPOSURE FOR THE COMMERCIAL APPLE ORCHARD, AND CHOICE OF SOILS.

BY RILEY C. CASE, LAGRANGE.

Much depends upon location and exposure of the commercial apple orchard. Elevation is preferred, that the trees may have plenty of drainage and the fruit not be injured by frost, the latter often occurring on lower ground. For summer apples, a southern slope is preferred; for winter, a slightly northern slope is best.

In our section of the State, orchards located around or near the lakes bear most fruit, and the fruit has the best color. I know of an orchard located on the north side of a small lake that bears fruit annually. And your vice-president has told me he has taken a number of premiums from

our State Society with the apples gathered from around this lake. And while I do not think our small lakes that freeze over during the winter time have the same effect that larger ones do that do not freeze, they certainly must affect the atmosphere, giving apples color and preventing frost.

In localities exposed to the sweep of winter winds, belts of ever-greens or deciduous trees will be found of great service. In all instances where the side of an orchard is exposed to prevailing winds, it is less successful and productive than the opposite side. Proof is afforded that shelter would be beneficial; belts, especially if of deciduous trees, standing too near fruit trees, have, however, rather injured than benefited them. The orchard should be beyond the reach of their shade and roots and be well exposed to sun and air.

The soil for apple orchards should be of good quality. Whatever will produce a vigorous growth of corn, wheat and potatoes will, in general, be the best for fruit trees. Sterile soil is unfavorable for both, doubly so for the latter, for while it only lessens the growth of farm crops, it lessens the quantity and greatly injures the quality of fruit. Land that grows the sugar maple is counted good orchard land. As a general rule, soil which is dry, firm, mellow and fertile, is well suited to this purpose. It should be deep to allow the extension of the roots; dry, or else well drained to prevent injury from stagnant water below the surface; firm and not spongy, to preclude injury or destruction from frost.

Few soils exist in our section of the State which could not be much benefited for orchards by enriching. The shallow soils should be loosened deeply. A quick method of deepening soils for the free admission of the fine fibrous roots is first to loosen it as deeply as practicable with the sub-soil plow, then with a trench plow. While there is no doubt that the clay soils which have such a combination of sand and gravel as will admit of easy cultivation is our best, yet we have orchard lands in our county a sandy, gravelly soil that is underlined with iron mineral, upon which we find some of our best orchards.

DISCUSSION.

John Tilson: Mr. Hobbs talked of the red clay. I want to know what's the matter with white clay. We have no red clay in our section. He don't seem to think white clay is good for orchards.

C. M. Hobbs: I would class along with red clay, the white and yellow. There is a white clay, that soil that extends across this State from Illinois that is very well adapted to apple growing, both in this State and Illinois, but as a rule I think you will notice from our State Fair exhibits that the larger and finer varieties are found in these red clay regions. It is a fact, well proved by experience, that where there is proper proportion of

iron in the soil, that fruits and flowers are more highly colored, and, as I stated in this paper, I was reading an article from an apple grower who claimed that where iron existed there were the finest apple-growing sections in the world. I know they grow very handsome apples, but I see no reason why those conditions don't prevail in Southern and Central Indiana.

President Stevens: What kind of clay have they in the center apple region of Illinois?

W. C. Reed: It is mostly hardpan soil. It is white clay, underlaid with hardpan.

Mrs. Stevens: I would like to know when the soil is lacking in iron, can it be supplied?

C. M. Hobbs: Iron, rusty nails may be inserted in soil. I have seen the c———rose, which is light pink; changed to dark pink.

Mrs. Stevens: How soon might we expect results from time of application?

C. M. Hobbs: Just as soon as the iron is rusted.

Mrs. Hale: I would like to ask Mr. Hobbs, how are we to know when the soil is lacking in iron?

C. M. Hobbs: We may have some knowledge of it. I think if our fruits and flowers are dull in color, it may be inferred that iron is lacking.

President Stevens: The next is selection of nursery stock. Mr. W. C. Reed is first on this subtopic.

W. C. Reed: In selecting nursery stock for a commercial orchard, one of the first requisites is not to select too many varieties. Only a few leading varieties for a commercial orchard, and, as a rule, trees of medium size. I don't think an overgrown tree is as good as a medium size. The overgrown trees are soft and spongy, while the medium-sized trees are more solid, and more apt to stand the winters. I would select a tree with plenty of top, and well-formed limbs. If it was inclined to be forked, trim all forks off and cut off bruised or broken roots, especially of the larger, stronger roots. Don't pick for the small, fibrous roots as much as you do for the large roots. Of course, in some varieties it makes a great deal of difference in the size and smoothness of the tree. Winesap and Duchess are not smooth trees. Of Ben Davis and Grimes Golden you can get a straight, smooth tree. Some growers expect straight, smooth trees of all kinds, so if you order such varieties as Winesap don't expect nice,

smooth trees. Another thing in selecting trees for commercial orchards—it is always best to send your orders in as early as possible. You can get better satisfaction from the nurseryman if you have your orders in in time, and you can get better trees than if you wait until the last minute. Some people wait until they get the ground ready, and send in and say, “ship at once.” If you want the best trees, send your orders in as early as possible.

President Stevens: Next on this topic is Frank Sheets.

SELECTION OF NURSERY STOCK.

BY FRANK SHEETS, MOORESVILLE.

Having been informed, by men of experience, what varieties of fruits are best suited to the different sections of the State, and since the law enforces inspection of the trees by a competent official, whose certificate is a guarantee of healthfulness, it would seem to be almost unnecessary to multiply words concerning a selection of nursery stock.

Our notions may differ as to the best methods of propagation, whether by budding or grafting, whether the trees in the nursery should be set close together or wide apart, or with reference to the manner of cultivating and pruning the young trees. Again, some orchardists would transplant one-year-old trees to be sure of getting all the roots, and that the training of the young trees might be in his own hands from the beginning; others would prefer trees of two or three years' growth, believing that such trees are advanced so much toward the time of fruiting.

All of these questions are debatable. Let every one be fully persuaded in his own mind.

My opinion, founded upon only five years of experience, is that more than all else, the longevity and fruitfulness of the tree, of whatever sort, depends more upon the cultivation of the orchard after transplanting. To be more definite, if I was planting, I would select well-grown, two-year trees of apple, pear, cherry, peach and plum—not more than one year from the bud. I would not want stock that had not given a good growth the previous year. However, it depends on the location of the nursery, as stock grown in one section of the country will be as large at two years as in others at three. I would try to avoid overgrown trees, as well as undergrown. There is danger in either extreme.

I would like a tree with a good, straight body and a well-balanced, symmetrical head, which you can get in some varieties, while in others it would be impossible, as they will not grow that way.

As nurserymen propagate and train their stock in about the same manner and with the precautions spoken of before, let me repeat that it is not necessary to worry very much about buying nursery stock. Only buy of a responsible nurseryman. Plant and cultivate them right. It might be well to see that your stock has not been injured by the winter, which you can tell by the bark, which, if injured, will be dark and discolored. I have trees of bearing age, both budded and grafted. I can see no difference in their fruitfulness and healthfulness.

In conclusion let me impress on you the necessity of good care and cultivation after planting.

President Stevens: Mr. Willard Barr is next.

THE SELECTION AND CARE OF NURSERY STOCK.

BY WILLARD BARR, LAWRENCEVILLE, ILL.

The practical orchardist deals largely in futures. In our calling a mistake is not easily corrected, and its consequences are often fatal. When we select the young trees, our selection, for better or for worse, is final.

The traveling fruit tree agent is not a factor in the problem at all. The man who seriously contemplates paying an unnecessary profit to an unreliable party is not adapted to fruit growing. I am a firm friend of the local nurseryman—that is, the nurseryman whom you know or whose reliability you can ascertain, and whose customers can be easily visited and interviewed. The larger firms whose location is at some distant point and whose alluring descriptions and extravagant claims are spread upon the pages of fancy catalogues may ship you fancy trees, but whether they do so or not rests solely in their hands. This should be in your hands, and in yours alone. The fruit grower should see his trees digged, packed and shipped, and while giving minutes to the contemplation of the price, should give hours to a study of the quality. The so-called "bargain list" is deadly.

The fittest survives. If we find a pest, either fungous or insect, attacking our orchards, we invariably find its starting point to be the weakest tree or trees. Poor nursery stock means many resets, and resets rarely do well, receiving, as they do, cultivation and treatment adapted to trees one, two or three years older. Good quality is a better guarantee than any State inspection certificate. And in the matter of yield alone the cent saved in the nursery bill means the dollar lost in the crop returns.

What are the characteristics of a choice tree? First and most important, a good root system, consisting of several large roots rather than one; all roots straight. Crooked roots mean trees crowded in the nursery row, and crowded trees mean weakly trees. A few, but not many, fibrous roots. A bright, fresh appearance. Next, a straight trunk, rather stocky than otherwise, with the branches evenly distributed on all sides. The heading is not of vital importance, as this can be modified later by trimming. Size: Medium large, extra large denoting that the growth may have been forced at the expense of hardiness.

Each item in the above description may be modified by variety, by character of soil or by climate, and we have no right to demand that each and every tree be perfect, but only that they approximate to the ideal.

Trees of apparently the same grade will, in two or three years, show a marked difference in size and vigor. Careful handling of the stock will, to some extent, remedy this. After digging, drying out should be avoided, also excessive soaking. The first cracks the fibre; the second dissolves and exhausts the partially digested plant food existent in the sap. The length of time which elapses between digging and setting is unimportant; the condition in which they are kept is all important.

Death follows fatal injury to plant life more slowly than is often supposed. The abrasion of the bark by careless tying or rough handling of the nursery stock may produce its ultimate effect several years after the injury occurs. The nearer the collar of the tree the injury is received, the more serious will be the effects. Shriveled or frozen stock may be restored by burying in damp earth. All stock that is split in root or trunk should be rejected.

All stock should be heeled in at once upon arrival, not in one pit, but in several conveniently situated ones, thus avoiding long carries while setting. But few trees should be taken from the pit at once time, and these few should be immediately planted. Young trees that have been otherwise well cared for are often injured by being scattered over the field and allowed to dry in the sun in order to save time while setting.

Trees should be trimmed, not before setting, as is often advised, but immediately after. Each tree is then in its permanent position, its defects in form can be more conveniently studied and remedied, and all abrasions of the bark can be more easily seen. Each abrasion and the end of each trimmed branch should be covered with a thick coat of white lead and oil.

Undue haste is responsible for as many errors as is carelessness. The man whose ambition is to be the owner of a large acreage, or the first man in the locality to finish his work, is never a good orchardist.

The orchardist who sees in the present slender shoot the future sturdy trunk extending and subdividing into vigorous, fruit-laden branches, who keeps his mind fixed upon an ideal and works steadily toward that ideal,

is the one who compels success. And he also experiences that rare satisfaction which attends the reflection: "I did my very best."

DISCUSSION.

President Stevens: I want to ask one question in selecting nursery stock. A good many growers would rather have trees that were grafted from bearing trees instead of from nursery stock.

W. C. Reed: That is a question which is rather hard to decide. It has not been experimented on, but it looks as though it would be reasonable that if trees were grafted from trees that were old enough to be prolific bearers, that the nursery stock would be inclined that way. Some trees seem to be more prolific and bear better than others. This is caused by soil, and certain other conditions, and certain varieties of trees.

A member: Is there any preference in the locality from which nursery stock is grown? Should one plant home-grown trees?

W. C. Reed: I don't think it makes much difference where nursery stock is grown. Don't think it makes much difference whether the trees are grown close to home or not.

A Member: In planting an orchard, set a board where you want the tree to grow, so as to shield the body from the sun.

W. C. Reed: I never tried that, or saw it tried on apples. We tried leaning trees where we wanted them to grow, leaning them to the northwest. They were almost a total failure. Leaning trees is very unsatisfactory.

A Member: How would it do to plant the seeds where you want the trees to grow in your orchard, and when old enough, top graft them?

Mr. Clore: There was quite a little discussion on that subject in New York Horticultural Society recently. Two or three gave their experience in that line. They gave it up as a poor job. It took so much more work to get the ground in proper condition. The seedlings were small and hard to take care of.

C. M. Hobbs: I know so little of the plan I would not recommend it myself.

W. C. Reed: I would prefer the nursery tree. There is no question but that you can raise trees so much better where you plant nothing but trees. You can not give them the same attention where you can if you have a solid body of trees.

H. H. Swaim: I have noticed—probably all of you have—the seedlings grafted after they have a little size, frequently outgrown the graft.

I have a tree of my own—the seedling was grafted on the Grimes Golden, and it has outgrown the Grimes and is fully four inches larger than the Grimes. It is an old bearing tree, probably twenty years old.

W. C. Reed: That is quite often the case. I hardly know what the cause is. The seedling probably furnishes more sap than the graft can use.

President Stevens: On this matter of selection of stock, what aged apple would you suggest the planter to select?

W. C. Reed: That depends a great deal on where the tree is grown. Some places you can grow a tree two years old that is plenty large for planting. Other places three or four years. If you were growing a tree in New York it would be better to take a tree three or four years old for commercial planting. This State, two or three years. Two-year-olds have given the best satisfaction in our part of the State. Some prefer three-year-old. Get a tree a certain size. I don't think it matters about the age of it, so it is healthy. In a dry season like last year a two-year-old tree would have been quite small. A good season, like this, a two-year-old would have been 50 per cent. larger than last year. I don't think the age of the tree makes much difference.

President Stevens: I noticed a short time since quite an interesting article from some apple grower speaking about selection of stock, and saying that we should select apples carefully, and figure on their long life. He went on to say that the life of an apple tree, after 125 to 150 years of working over by the grafting and budding process in use, runs out. He went on to state that he would be particular about selecting trees that had been grafted from vigorous bearing trees. Where we want an apple orchard to stand twenty-five or thirty years, we must be careful to get trees that their natural life has not been exhausted. This is important for us to consider. We all know that certain varieties are running out every year, and if the apples we are planting today are about exhausted, it is well for us to look into this matter. What can you say about this, Mr. Reed?

W. C. Reed: I think in regard to that, Mr. Stevens, you would have to ask an older man than I am. I can not attempt to answer that question at all. It is something I never studied. While it looks reasonable, there might be nothing in it. We all know that varieties do run out. Every fifty, sixty or seventy-five years they do run out, or apples come up that are better.

Mr. Kingsbury: I want to ask the question: How can we be certain to get the varieties we order? We have complaints frequently from our readers, saying they ordered trees from such and such a nursery, and

they have sent them different varieties from what they ordered; they find this out after the trees begin to bear. Not long ago I had a letter from a man in the northeast part of the State, giving his experience in regard to trees he had purchased. He had ordered certain varieties, and they had given him other varieties, as he found after the trees came to fruit, and he wanted us to publish the name of the nurseryman, so as to show he was doing an injury to his customers. It would not do for us to publish the names of reliable nurserymen; it would ruin their business, so we sent the letter, in this case, to the nurseryman, and he made the best defense in his point of view. He said they could not guarantee trees after they had gone from them—the agent might have gotten them somewhere else; he said they were not responsible for the agent's mistake. I think there was something in that. He might have bought trees from this nursery and gotten others where he could. There ought to be some way whereby purchasers of trees could tell the kinds purchased, or the kind he pays for. If nurserymen could afford to put a seal on trees they send out (I don't know whether they can or not) it would be a great help. This ought to be done in cases where the purchasers require it. In that way they could secure themselves in this matter.

A Member: I am not a nurseryman. I have been working some in a nursery, and I want to say a word in defense of the nursery. I worked some little for the nursery, and I want to say that I am surprised that there are not thousands of mistakes made where there is one, because, while the nursery here is not as large as some, they have to depend altogether on hired labor—hands they can pick up in the neighborhood—to help them out in the delivery season, and I notice some of the hands are very careless, and on that account it seems impossible to put a seal on every tree. I know by personal observation that —— wears himself out during the delivery season trying to see that everything goes from his nursery in first-class order. It is impossible for him to see everything done that is done, and I judge from that it is the same in all other nurseries.

E. Y. Teas: There is one thing in Indiana we all ought to do, and there is not a farmer in the State but what can if he wants to, and that is, send to the nursery and get what he wants, but he won't do that. In preference, he will depend on the man that goes along from house to house, swindling everybody. There is no use to push the blame on the dealers.

H. W. Henry: There is one way that this can be settled very satisfactorily. The Legislature should pass a law that every man who sells nursery stock must take out a license.

President Stevens: We will take up the next sub-topic, "Preparation of Ground, Laying Out and Planting," and Mr. Burton is first.

PREPARATION OF LAND, LAYING OUT AND PLANTING.

BY JOE A. BURTON, ORLEANS.

It is not well to believe everything you read or hear about planting an orchard. The ground should be fresh plowed, a clover, timothy or pasture sod; or a wheat, oats, rye or cow pea or corn stubble. That is, the land should be cleared and not a bluegrass sod. Its preparation should be what the planter wants it; it don't matter to the tree.

We plant two rods apart. One way we set three rows of stakes that locate the rows the other way. Then with three stakes we mark the first row the other way. It is well to mark two rows before you begin to plant. Remember, none of these indicate where a tree is to be planted. To find this, we carry an odd stake and set it when we are ready to dig the hole—that is, if we dig our own holes. If a cheap man is to dig the holes, we set a short stake for each hole and tell him to dig the hole with the stake in the center. Of course, he gets it to one side. If you are smart enough, better dig the holes yourself. Dig in the right place. Set the tree in the center and never look back to see if it is in line.

Be sure to dig the hole big enough. Be equally sure not to dig it too big. If you could hocus pocus the tree into the ground without digging at all, it would be ideally planted. Better spend the time it would require to dig a hole three feet across and deep, packing the dirt around the roots, because you will, very likely, be very slack in packing dirt around the roots. Better cut the roots moderately short. Fibrous roots prevent the packing. Remove them, or, better, plant older trees that have few fibrous roots.

If it is a very dry time, use plenty of water. If you are doing your work well, you will become thirsty. Drink plenty. Then your feet will become dusty, and should be bathed every evening. But don't put any water around the trees. If you have packed the dirt around the roots properly, they will be all right without watering, and all wrong if watered. Best time is early spring or late fall. Not early fall or late spring.

President Stevens: J. C. Kimmell is next.

PREPARATION OF THE SOIL, LAYING OUT AND PLANTING THE
COMMERCIAL ORCHARD.

BY J. C. KIMMELL, LIGONIER.

In the introduction of this subject we will presume that a suitable site has been selected, good soil, air and water drainage having been considered. The preparation of the land will depend largely upon its condition and the crop that now occupies it.

The ground should be deeply plowed in the fall or early in the spring. Before plowing it should be thoroughly fertilized with well rotted stable manure and unleached wood ashes. This will give the trees a good start by filling the soil with humus and supplying potash.

If the land has not been thoroughly subdrained, this should be done at once, as no fruit tree can thrive in a cold, sour soil. Harrow the ground thoroughly with a spring tooth harrow, in order to have a fine soil to pack around the roots of the trees and to prepare the soil for after-cultivation.

There is a difference of opinion as to the distance of planting apple trees and the number of trees that should occupy an acre of ground. Some orchardists recommend planting the trees that are to remain permanently in the orchard about forty feet apart each way and plant short-lived varieties that will come into bearing earlier between these trees. By this method nearly double the number of trees may be grown on the same area, and an income would be derived from the orchard sooner than if only the long-lived varieties were planted. Notwithstanding the advantages that the advocates of this method claim, I prefer planting only long-lived, hardy varieties thirty feet apart each way, or forty-eight trees to the acre.

Set a stake at each end and in the middle of the row, and open a deep furrow with a breaking plow, going twice in the row, throwing the dirt both ways. Having marked the ground out one way, crossmark it in the same manner, and you will have but a small amount of hand labor to do.

Another plan, and a very satisfactory one in planting a small orchard, is to set a stake where each tree is to stand, sighting from one stake to the other in order to get the row straight; then dig a hole two and one-half feet in diameter and two feet deep where each stake stood. The latter plan would require a great deal more time and hard labor, and would be impractical in planting a large orchard. Having prepared the ground and marked it out according to the former method, we now come to the most important step—that of planting.

Select good two or three year old stock, strong and healthy. The difference in price between good and inferior stock amounts to but a few cents per tree at the time of planting, but amounts to many dollars when the trees come into bearing.

Open the trees in a closed shed or cellar and prune the roots and branches of each tree and wrap the trees of each variety separately in burlap, packing the roots in wet moss or cut straw.

The pruning at time of planting is a matter of considerable importance. All the large and bruised roots should be cut back severely.

The trimming of the top depends upon the form of the tree which we wish to grow. If we desire to have a low spreading tree we should leave some of the side limbs on the body of the tree, simply cutting them back; but if we desire to have the lower limbs out of the way so we can culti-

vate close to the tree when they are full grown, we must trim the tree to a whisp. Bear in mind, however, you must decide upon the shape of the tree at the time of planting, as a change of plan later will necessitate the cutting of large limbs which may seriously injure the tree. Having pruned all of the trees and packed each variety by itself, load them on a low wagon and thoroughly dampen the roots, then throw a heavy canvas or blanket over the trees to prevent the sun and wind from drying them out. Two or three hogsheads of water, a plat of the proposed orchard, and a couple of good shovels will complete the outfit.

A good plan is to set one variety at a time, setting all trees of one variety in a row in order to facilitate harvesting the crop.

The plat should be arranged before going to the orchard and each tree should be set exactly in the place designed for it. As soon as the tree is set the plat should be checked with a lead pencil. Care should be taken not to get varieties mixed in planting, or the innocent nurseryman will receive censure which is not due him when the trees come into bearing.

Hitch a team to your wagon and drive to the orchard, going between two rows. Throw out a few shovelfuls of dirt at each crossmark and set the tree immediately while the soil is fresh and loose. Place the tree in the hole no deeper than it stood in the nursery with the body of the tree sharply inclined to the southwest.

Spread the roots evenly, fill with good surface dirt, avoiding litter, manure or ashes around the roots. Shake the tree up and down so as to settle the dirt around the roots, then tread the earth firmly and fill up to within a few inches of the top, leaving a basin about the tree. Fill the basin with water and after it has soaked away finish by filling up with loose dirt to prevent baking. It is important that the trees should be left under the canvas until you are ready to plant them, and it is a good plan to plunge the roots in a pail of water just before placing the tree in the hole. In a few days go over the orchard and stir the dirt around the trees with a hoe and start a horse cultivator or harrow as soon as possible. Any species of truck that will admit of frequent cultivation during the entire season may be safely raised in the orchard, but small fruits, shrubbery and grain should be planted by themselves.

President Stevens: We will now hear D. B. Johnson. *

PREPARATION OF LAND, LAYING OUT AND PLANTING.

BY D. B. JOHNSON, MOORESVILLE.

After the location has been selected, the next thing is to prepare the ground for planting. I would thoroughly prepare the ground by first plowing deep, and, if in spring, plant with potatoes, tomatoes or some

crop, if possible, beside a corn crop, that will admit of thorough culture during the growing season, so that the young trees will receive the proper care.

We set our trees in straight rows each way, thirty feet apart and as nearly north and south and east and west as possible.

To enter into detail: We first get a start at one corner of the field with the square, and set a stake where each tree is to be set. Then with two slats nine feet long by three inches wide and one inch thick, with a notch in the center and a hole in each end, we are ready to make the holes and set the trees. One man, who is handy with the spade, takes one of these slats with a bundle of small pins about twelve inches long; he lays the slat down so that the stake that was set for the tree is in the notch, then sticks a pin in each of the holes in the end, lifts the slat off the pins and leaves them in the ground. He then digs a hole from fifteen to twenty inches in diameter and from twelve to fifteen inches deep. One man will dig as fast as two will set. The parties setting the tree place the other slat over the pins left by the digger and fit the tree into the notch so that the tree leans a little to the southwest, with probably the best roots on the west or southwest, to act as an anchor. After the fine loose soil has been fingered in about the roots and the tree is set, the slat is removed and your tree will be just where you set your stake. Everything else being equal a tree will grow just as well if not in exact line with the others, but the future of that tree very much depends upon how it is set. Too much pains can not be taken to give it the right start.

The roots should be examined and all the broken ones taken out. Some of the very long ones cut back, and the ends of all, from the size of a small pencil up, should be clipped with the slope on the under side, and it should be set about three inches lower than it was in the nursery, and I repeat that the soil should come in firm and close contact with all the roots, the under side as well as the top. We use a small tamper stick until all the roots are covered and firmed with the foot so that when we have finished we are sure that that tree will grow. We usually trim the tree after it is set.

If the ground is in good condition and a good healthy tree, set early in the spring or late in the fall, in well drained, fertile soil, the roots properly trimmed and set the proper depth with the top soil firmed around the roots—all the roots—and especially where they start from the tree, the ends and between the ends. I see no reason why that tree should not grow, and yet, if any one of the conditions are neglected, you hazard the chance of success.

I have not raised the question as to which is the best time—fall or spring—for setting, for all of our trees have been set in the spring and with fairly good success. If there is any one thing that is essential, it would be to put a shield of some kind around the body of the tree to protect it from the tree borer.

DISCUSSION.

Mr. Thomas: I want to say that I regard Mr. Burton as an authority on this question, and he has covered this subject, and all to the point. There is one thing I would like to say; this is one of the most important points in planting—do not dig the hole too deep or too shallow. My opinion is that we can not, all the time, dig the hole exactly the right depth, but be sure to get it deep enough. If the hole is too deep, fill it up. There is more work in the planting of an apple tree than in any other type of fruit; just dig the hole plenty deep, and if it is too deep, fill it up.

Amos Garrettson: Speaking about leaning a tree to the southwest, I notice the trees have gone over to the position that had its main roots in that direction. Be sure and get the strongest roots southward. They will do more good. Now, I would like to ask the question from some of these nurserymen: Quite a number of my trees have been set five or six years and have blown over, can they be set back?

W. C. Reed: They can by digging the dirt away from the other side, and then push them back. Do that in the spring when the ground is soft. I straightened up a Yellow Transparent tree, a few years ago, that was touching the ground. I let it go until the ground was soft, and did not fasten it there, just planted the tree back good and solid. It is all right yet today.

W. B. Flick: In regard to planting, I think the most important thing in planting a tree has not been sufficiently mentioned, and that is the proper firming of the dirt about the roots of the tree. I speak from expensive experience. When I set trees I want the dirt firmed about the roots perfectly, usually they simply pat the dirt with their feet, that is not firming. I insist upon this because I know it is a very important thing in planting a tree.

President Stevens: I would differ from Mr. Reed in planting. Instead of using stakes I would use a chain or wire twenty rods long. Take your tape line, go along, mark the distance you want the trees apart, measure along one edge of the field, set a stake out at the other end, stretch your wire and you have the place you want your trees without setting a stake for each tree. I find that to be the best way of getting your trees perfectly straight. If the trees are planted that way they are true to a line.

W. M. Waltman: All that discussed the question of setting the apple tree have been very anxious to get a straight row. Now, if you come into my orchard you make a sad mistake if you expect to see a straight row, because I believe the crookeder the row the better they grow. We

grow them in the shape of the hill. Of course, it makes it unhandy to get in and out with a team, but it prevents washing.

A Member: Mr. Johnson spoke like the best way was to lean a tree to the southwest, but I think not. There is no use to set it there, it will be back to the northeast in a little while. The right thing to do is to set them to the one o'clock sun. I have the trees set that direction, and I find the sun never scalds the bark. When the sun scalds the bark, then the tree is gone. Set them by the one o'clock sun, for then they do stay there.

A Member: One-half or two-thirds of our people don't trim a tree when they set it out, and that is a sad mistake.

Geo. P. Campbell: I will say a few words on the line of trimming trees. When setting trees, I trim them back to correspond with the roots left on the tree. I set out a new orchard a few years ago. I cut all the roots off from the under side, cut back all the tap roots; turned the top right over to me and cut that top to correspond with what roots were left. I took a great deal of pains in setting those trees. I saved all of my trees, while my brother-in-law lost all of his. He dug his hole, set his trees in one-half day, while it took me and my boy one and one-half days to set mine. His trees are dead, mine are all living today. Some men laugh at you when you say trim the tops back with the roots. Leave no more top than roots.

President Stevens: We will now take up the subject of "Trimming," and hear the papers. Mr. Henby first.

TRIMMING THE APPLE.

BY J. K. HENBY, GREENFIELD.

Solomon in his proverb, says, "Train up a child as he should go and he will not depart from it in his old age." This can, I think, be applied to the apple tree even better than to the child. In the training of a child we begin at the nursery, just as we begin with the apple; and its parent is the nurseryman. After it leaves the nursery it enters school in the common school branches and its teacher is "The Orchardist." It passes from the common schools and its professor is still "The Orchardist;" when leaving it has all the requisites that are required for a long career of usefulness in this world and is ready to bear fruit as it has been trained; if the school has been a good one, such will be the fruit; should it be

unfortunate and receive little or no training, we may expect poor fruit, and such will we get.

No good teacher will lose sight of his scholar after graduating, but will do whatever is required by giving advice and looking after his welfare that the fruit will still be more and more abundant as he grows older and becomes established.

The first ten years of an apple tree should be spent in preparing it for later fruitfulness, and we will begin in its babyhood. First year: Trim off all branches except one straight shoot, being careful to keep it straight and thrifty (or like Topsey, it may be left just to grow). Second year: Allow one leader to grow up, being careful to allow no side branches to grow beyond it; in order to allow the body of the tree to become stocky, most of the side branches should be allowed to remain on until late in the summer, when they should come off within fifteen to eighteen inches above the ground. The remainder should be left on until late in the winter, then trim straight whip and top back within forty inches above ground. Third year: You now have a tree with straight stick forty inches high; allow eight to ten branches to start from the top of this stub and keep all other branches off by rubbing with gloves while yet tender; with these eight to ten branches allow one to grow beyond the others to act as leader. Select four to six evenly balanced branches around the tree and cut off the remainder, so at the end of the third year you have a tree five to seven feet high, three-fourths to one inch in diameter; stem of the tree, thirty to thirty-six inches from ground to branches; roots, fibrous, healthy, and evenly divided around base of tree, and it is ready to plant in the orchard.

Before planting there are many things the orchardist should know in order to intelligently give the tree its best training.

Winter pruning produces growth while summer pruning retards growth. A scar made in pruning will heal more quickly if made just before the tree begins its growth in the spring or while it is growing. No scar of any size should be left exposed to the air, but should be coated over with some substance that will exclude the air and not be injurious to the tree; I believe lead paint to be the best all round dressing.

All main branches should be kept pruned back in the first few years so as to form good, stout, stocky wood that will bear up the fruit when loaded.

Air and light should circulate unretarded by too heavy foliage that fruit buds may form and fruit properly mature; and to obtain this the head must be evenly balanced.

Bearing this in mind you take the tree from the nursery ready to transplant, and as we are not advocates of the string-fellow method we would say that the average tree from the nursery has had the roots pruned enough, but we take a sharp knife and cut off all bruised or broken roots, leaving a clean cut scar; the top should be cut back one-

third to one-half, or should the top not suit, trim the tree to a single stem and cut off at height where you want new top formed. I would recommend not more than four to six branches on a tree, and each spring the new growth should be trimmed out not less than one-fourth of last season's growth, and all surplus branches that may not be needed to make a well-balanced head. Should the tree get one-sided, trim the branches that should make a faster growth in the spring before buds begin to swell, while the other side should be checked by summer trimming.

Should the tree be an upright grower and you wish it to branch out more, the branch should be cut that the end bud will be on the under side of the limb, or should the tree be naturally spreading, the end bud should be left on the upper side of the branch.

The place where a limb may be cut from a tree is marked by nature, there being a ring in the bark separating the branch from the trunk of the tree, the cut should be made just on the outer edge of this ring. Hold the knife with the edge of the blade inclined toward the tree and leave a clean cut scar that is inclined slightly upward, such a scar will heal more quickly than one made by cutting straight up.

Should the tree reach bearing age and fail to produce its fruit, allowing that its food and cultivation has been perfect, you may assume that it is growing too fast, then check the growth by summer pruning, which will throw the proper strength into the fruit buds, causing it to bear its fruit when other conditions are favorable.

So should the tree be trimmed, bearing in mind that until the tree reaches bearing age you should trim for nothing else except to stimulate growth, to shape the top and to prepare the tree for a long life of usefulness. If this is done properly in the first few years of the tree's life, it will require very little trimming afterward, but should be watched very carefully and branches taken off now and then as circumstances justify.

TRIMMING THE APPLE ORCHARD—WHY, HOW, AND WHEN.

BY RICHARD J. BARR, WASHINGTON.

This is a subject over which there is a great deal of controversy. However, I will say that there is no defined line which can govern every condition; one must be largely governed by varieties as well as other conditions.

We will start by saying we don't believe in very much trimming, if a tree is started right and the top opened from the start. In the first place, we trim for sunlight and air. Apples require both to make them fine in size and color. If the tree is too compact the fruit will not have

a desirable appearance, yet there can be too much sunlight on the fruit. We also trim as one method of thinning the fruit. In trimming we should take into consideration the picking of the fruit and the spraying of the tree.

As to the trimming for fruit or wood growth we will not attempt to discuss, for the reason that we are not well enough posted to take up the subject.

How.—We trim different varieties different. For illustration, we trim such varieties as Grimes Golden, Northern Spy and all upright and compact tops from the inside in order to open the tops; but for all open top varieties, such as Ben Davis and Winesap, we trim from the outside in order to make the top more compact. We think the top of a tree should be as well balanced as possible.

We endeavor to keep the water sprouts or suckers rubbed or cut off all summer so the strength of growth is utilized in tree and fruit and save cutting them from the tree the next year.

When.—We prefer from late fall until March; any time while the tree is dormant. I don't like trimming when the sap is running or the leaves are on the tree. My experience is that the wounds heal better and don't sprout nearly so bad to trim them when dormant.

I would always use grafting wax to cover all wounds to keep the water out so decay will not set in.

I would not cut a tree too bad at one trimming. If it has been neglected too long, do the trimming by cutting some each year until the top is opened out, but I insist if a tree is started right it should always be trimmed with a pocket knife instead of an ax or saw.

A Member: I would like to hear Mr. Burton's opinion on trimming trees.

Joe A. Burton: The question, how many limbs to leave, and just how to trim the limbs, I might say, the easiest way to find when you have trimmed enough is to watch the spray. You can not spray when the limbs are too thick. The important thing to do is not to trim like our old Adage Hero—he just cut out everything. If there had been Grimes in his day they would not have borne an apple. I want my trees to bear all the way from the top down to the inner end of the limb. You must not leave a limb of any size, if it is in the way, but cut it off. Don't cut off all the little limbs or fruit spears and leave the big ones in the way. You have as much bearing wood on a tree properly trimmed as you do on a tree with a great quantity of limbs. A very important point with me is in the starting of the tree. Start it with a leader. Some trees don't naturally make a leader. They have to make a leader or not grow at all for me. I bend in some limbs and make a leader for it. I tie to keep them in place. You have to have a leader. Then don't let the limbs come out too thick; never cut a limb unless you know why you cut it. If in

doubt, cut anyhow. Next time you come along you may see a reason for cutting it. Your reason may be wrong, but when you do the best you can, you are excusable. Don't ever trim up a tree so you can plow under it. If you can not cultivate under a tree, it don't need it. If you are going to cultivate your ground, leave your trees off. You are working for the apple tree, not to cultivate the ground.

President Stevens: "Cultivation of the Apple Orchard" will next be considered.

CULTIVATION OF THE APPLE ORCHARD.

BY WALTER S. RATLIFF, RICHMOND.

The subject of the cultivation of the soil of the orchard is, and has been of recent years, occupying considerable attention among fruit men generally, and many interesting experiments have been in operation at some of the experiment stations. It is conceded, however, that in any event, the soil in the young orchard should be sown to oats during the latter part of the summer. The early frosts following check the growth, and the mat of unmatured oats dies and falls to the ground. This furnishes a mulch that not only prevents erosion of the soils on rolling lands, but serves as a blanket in retaining moisture in the soil. When the soils are exposed to the winter rains, they wash seriously, and much of the water that should be retained by absorption is lost when a mat of this character can not be secured.

The oat hay has another significance, being of much value to turn under as a recuperator to the soil the following spring. Where naught but summer cultivation of the orchard is desired, the cultivator is only used between the times of plowing and sowing of another crop of oats. In this way the soil is stirred at a period when the weeds would be the most troublesome, and when it is believed the trees will gain the most benefit for such treatment.

There is quite a diversity of opinion existing in the minds of our fruit growers relative to the cultivation of the orchard, but from observation in this and other States, one would infer that the young orchard is being tilled with the crops of the farm.

Usually the orchard is planted as conveniently to the residence as possible, and is often used as the garden spot of the farm. And in connection with the crops of the farm, the berry canes and bushes, together with plants of other small fruits, are quite conspicuous, often claiming the major part of the attention of the owner himself and his attendants, to the detriment or neglect of the fruit trees themselves.

For all it is conceded that the growth of the smaller fruits in young orchards is not detrimental to the proper development of the trees, yet there should be a reasonable amount of judgment exercised in the amount grown as well as the care given them while under cultivation. The amount of nourishment and water that are found necessary for these crops must surely come from the soil, and where the earth is not overly rich and well watered, the result might be inferred.

Admitting that a crop should be grown within the orchard boundaries, the question of the kind soon arises. A grass crop such as clover or timothy, is often seen in orchards that adjoin pastures or meadow fields. When timothy is grown, the average farmer readily calculates the exhaustion of the soil occasioned by its growth, and can easily foretell the drying of the surface during the heated part of the summer after the hay is cut. Clover is far better and is often used to occupy the ground for the first few years after the orchard is set out.

Some injury might result in cutting the grasses either by the team or the machine, as at the time of working in harvest, the trees are so easily injured and the branches broken.

Neglected orchards often grow up with weeds and briars and finally become grassed over with blue grass and foxtail, which afford some pasture.

When the soil is turned, and oats or even millet is sown, then the conditions are similar to those of clover; when sorghum (sown) is used as a forage crop, only between the rows of trees, the drain upon the land is considerable, especially in moisture, but not believed to be overly exhaustive.

In considering level, bare, shallow cultivation, it is deemed a necessity to turn under the oat mulch referred to above, which is not only enriching, but lessens the chance of the soil becoming hardened during the summer. The number of cultivations by the harrow or cultivator depends largely on conditions of certain localities. Some advocate from six to ten times stirring of the soil during the season, which is found to be not only necessary, but essential. Cross cultivation is of much assistance in keeping the weeds in check and should be practiced whenever possible.

Although the plan of continuous, bare cultivation is commendable, yet this plan is not followed altogether. Too many farmers look upon the project of such orchard treatment as a lack of proper utility of the land. Too long a time is consumed in growing the trees to not have some thing else between the rows, and cropping is the direct result generally.

It is not material as to the kind of crop that is to be selected, when a crop is to be added, so that it is of the vegetable class, especially those known as hoed crops, for these are not of sufficient height to interfere with the proper growth of the trees.

Field and sweet corn being outclassed, potatoes, root vegetables, cabbage and melons have been generally planted with good results. They

being easily cultivated and of reasonably rapid growth, and require as much attention as would bare soil in clean cultivation. No doubt the hoe would be used oftener and to better effect where such crops are grown than otherwise.

Although many conditions render orcharding uncertain, yet the essential feature in soil cultivation is to retain and make available the water in the soil. From scientific observations, it is found that the roots of fruit trees penetrate the earth to a considerable depth and the amount of water in suspension in the same depends almost directly with the depth of penetration. And when the precipitation for a given period falls abnormally below the average, the result is almost immediately noticeable and directly traceable to such condition. So that by constant, level cultivation the soil may be able to retain and give up such moisture when one of the essential condiments in orcharding will be in part accomplished.

When such deficiency of the water supply exists over an extended period, it has been found necessary to supply the same by artificial methods. This is the case with western orchards where irrigation has not only been found practicable but absolutely essential, and the life of the tree, although often jeopardized, has been extended and the orchards saved and encouraged to bear.

The volume of available water in the soil is not only of special value to the proper development of the individual trees themselves, but an important factor in the development of the fruit as well. It induces a greater profusion of bloom and a healthier setting of fruit. It has been found essential both to the proper growth and ripening of the fruit, and is believed to exert an influence in its keeping qualities, especially after being removed from the trees.

DISCUSSION.

Amos Garretson: I did not write any paper on this subject, for I knew I could not do it justice. I have been cultivating my orchard for about six years, and I have seen the good results. There was no time during any dry season, but what you could go into the orchard and take your foot and raise moist dirt. It is planted in straight rows.

Mr. Kingsbury: How many of the apple growers present cultivate their orchards? (Answer.) Seven.

Joe A. Burton: If you should take a walk over in my orchard you would say I do not cultivate at all, but I cultivate the way I want to.

President Stevens: We will have next one of the most important things in fruit growing—"Spraying"—by Mr. Henry.

SPRAYING.

BY H. W. HENRY, LAPORTE.

Spraying is to fruit, what beauty is to woman, it puts it on the market. No good fruit can be put upon the market unless it has been properly sprayed, yet not ten per cent. of the farmers' orchards of Indiana ever see a sprayer. Many of these orchards contain fine fruit, and could be a great source of revenue to the owners if they had the proper care and attention. Why are these orchards not cared for? I believe because their owners lack the proper knowledge as to how to do it.

We have ninety-two counties in the State of Indiana, and each one of these counties, on an average, will contain at least 2,000 farmers' orchards of from one to four acres, making at least 200,000 acres devoted to farmers' orchards. The most of this land under present conditions is simply waste land, and would be better in the corn or wheat field. But with proper care and spraying these orchards could be made to average 100 bushels of good apples per orchard, or 2,000,000 bushels of apples at fifty cents per bushel would add \$1,000,000 to the annual income of the farmers of the State.

With this conservative estimate of waste, it seems to me that the State of Indiana could not make a better investment than to appropriate \$5,000 to \$10,000 to teach the farmers of the State how to care for and properly spray these now neglected orchards, and make them a source of revenue to the State. It is said by good authority that we import \$1,000,000 worth of apples into Indiana each year for home consumption, and here is almost the total amount going to waste each year from a lack of knowledge how to properly care for it.

Most farmers think this spraying is a mysterious business and something they can not understand, and belongs to the professional fruit grower, with whom he does not care to associate for fear some other farmer will say, "Why, Smith has gone into the truck business." They have let it go from year to year, from bad to worse, until it will take a revolution to awaken them. If they only knew that spraying is a very inexpensive operation and could realize its true benefit, I believe they would practice it as regularly as they do planting corn and sowing wheat.

A good barrel sprayer with a force pump, hose, and all complete will not cost over \$10 to \$12, and it will last many years. The cost of the material is a trifle, to make fifty gallons of Bordeaux and Paris-green mixture, will not cost over seventy-five cents. Four pounds of sulphate of copperas at twelve and one-half cents and twelve pounds of lime at ten cents, and one-half pound Paris-green, fifteen cents. This can be made in a few minutes. Pump a barrel half full of water, put the

copperas in an old flour sack and hang it in the water, and put the twelve pounds of lime in a vessel and pump water on it until it slacks. Let it all stand until next day, and then thoroughly stir and mix the two together and strain into the spray barrel, adding the one-half pound of Paris-green and you are ready for the operation. The barrel should be placed upon a wagon, a boy to drive and some one to pump, and one to hold the hose and do the spraying. This should not take over an hour to thoroughly spray from 200 to 300 trees. The whole operation has not cost in money over \$1, and two hours of time; and for the three sprayings necessary would not cost more than \$3 and six hours of time. Not a very costly or very mysterious operation, considering the great results obtained from it.

If these simple facts could be impressed upon the farmers of the country, I believe ninety per cent. of them would practice it regularly, and add a great source of wealth to the State.

The three sprayings necessary should be done about as follows: First one about the time the buds begin to swell, the second about the time blossoms have fallen from the trees, and the third about ten days later. The spray should be a fine mist, and the mixture should be kept thoroughly stirred. Never use a sprayer that does not throw a fine spray, and keep the material well stirred, and never do it at all unless you do it thoroughly. Some of the prejudices to spraying have come about by some crank going over the country with a fifty-cent squirt gun and spraying farmers' orchards at so much per tree. Such a man stopped at my place once and if ever a man got a raking he did. Spraying is the finishing touch to the orchard and fruit as the paint to the house or label to the package.

This subject of spraying and care of the orchard should be on every Farmers' Institute program, and should be made a special work by State and local Horticultural Societies, as I can see no good in farmers planting new trees unless they are taught how to care for the old ones. They should be taught how to care for them, and then be compelled to do one of two things, spray and care for them or cut them down and remove the home of nine-tenths of the fruit pests of the country.

The State Entomologist should be a man that could devote his whole time and attention to the fruit interest of the State. Indiana is far behind, in this line of her resources, any of her sister States. Instead of importing \$1,000,000 worth of apples for home consumption, we should export four times this amount. There is no better soil, climate or natural conditions any place in the United States than Indiana affords, but the people have not as yet taken advantage of these opportunities.

It should be the duty of the State Entomologist to spend his whole time in teaching farmers how to raise and care for orchards and fruit crops.

A Member: Mr. President, I move that all the remaining papers under this general head be read and then discussed.

President Stevens: Will this be taken by consent?

Several Members: Consent, consent.

President Stevens: We will then have the remaining papers read and then all discussed together.

THINNING THE APPLE.

BY JONAS STINEMAN, WAUPECONG.

In all occupations and stations in life the ambition of man is to attain the highest degree of success. And in order to reach this desirable result in any capacity it is necessary to observe and perform every part of the labor with the utmost care and the highest degree of perfection. This principle applies to no industry more particularly than to that of fruit growing. Hence the orchardist starts with the selection and preparation of his soil, the selection and planting of his trees, the cultivation, pruning and caring of his orchard. These stages of labor and care are necessary previous to the setting of the first crop of fruit. But at this stage of the growth of the fruit comes a very important work, viz.: That of thinning fruit when necessary. It is sometimes said that the successful farmer causes two blades of grass to grow where before but one blade grew. But this sentence might well be reversed in applying it to many an orchardist by saying that the successful grower causes but one apple to grow where before two apples grew.

The object sought and obtained by the process of thinning fruit is two fold. First, by proper thinning a much greater per cent. of first-class fruit is secured and a correspondingly higher price is obtained therefor. Second, by thinning the fruit the future vigor and vitality of the tree is largely enhanced without materially diminishing the quantity of the fruit. To the masses of inexperienced fruit growers it is incomprehensible why a given number of bushels of small apples should tax the vitality of a tree to a greater degree than to grow the same quantity of large apples on the same tree.

This condition, however, is brought about by the fact that a small apple produces as many seeds as a large one, and the development and maturing of seed exhaust the vitality of a tree to a much greater extent than the production of fruit pulp.

It is also a noticeable fact that the larger the fruits on a certain tree the better it is colored, and thus enhances the commercial value of the fruit. As to the time of thinning apples, it varies somewhat according to the season of ripening, but should be performed as early as practicable. A suitable time is when the apple is about an inch in diameter, but it is better to thin them when they are half grown than to not thin them at all, if it is necessary.

The process of thinning may be performed by two different methods: First, by cutting a number of small twigs containing fruit from among the branches, thus admitting air and sunshine, two very essential elements to the development of fruit. Second, by removing by hand all superfluous fruit. To perform effective work great care must be observed in leaving the remaining fruit distributed as even on the tree as possible. As to the distance apart the apples may be left, depends somewhat upon the variety of the fruit. A small or medium variety may be left nearer together than a large growing variety. No definite rule can be given on paper. That must, to a certain extent, be governed by the skill and experience of the individual performing the work. As a rule, apples left from seven to ten inches apart leaves them near enough together. The work can be performed best by using a step-ladder to reach all branches that can not be thinned from the ground, as the work can be accomplished more effectively by approaching a branch from the end instead of working out from the center of the tree.

In regard to the cost of performing this labor, much depends on the per cent. of fruit that should be removed. But in any event the cost thereof is small compared with the increase of the commercial value of the fruit that has been properly thinned over that which as been neglected, not to speak of the better condition of the tree and increased number of fruit buds that have formed for the following season's crop. One of the greatest obstacles in the way of an experienced fruit grower to properly thin his fruit is the fear that he removes more fruit than necessary, and this fear often causes the work to be but partly performed. We will therefore give a few statements from a mathematical standpoint.

Take an apple tree that has a top fifteen feet in diameter and eight feet deep, containing 1,408 cubic feet; deduct one-half for large central branches and open space between the branches; this leaves 704 cubic feet, or 1,216,512 cubic inches; this number divided by 512, the number of cubic inches each apple would occupy if grown eight inches apart each way, would equal 2,376, the number of apples on said tree; as a bushel of fair sized apples contains 158 apples, the aforesaid tree would produce fifteen bushels of apples, which may be considered a profitable crop for such a tree, especially when taken into consideration that such apples would sell from twenty-five to seventy-five per cent. higher than fruit of the same variety of a small grade could be sold for.

GATHERING, GRADING AND PACKING APPLES.

BY FRANK SIMPSON, VINCENNES.

In gathering and handling apples it is very important to the cold storage man or packer to have them picked, graded and packed with great care, or he is bound to lose money on every barrel he handles, unless he has bought them very cheap and the market and other circumstances work in his favor.

There should be no chances taken on anything but a hand-picked apple, and each individual apple should be handled with the same care, from the time it comes off the tree until it is in the barrel. Do not use sacks to pick in if it can be avoided, as the apples are bound to be more or less bruised by constant rubbing, and the bloom is also rubbed off, thus detracting from the keeping qualities of the fruit. To the careless fruit grower, who has a crop when every one else does, the idea is to work off as much of his poor fruit as he can get past the sorters, and as a rule, this kind of a man is not averse to picking up most of the windfalls and trying to put them in storage also, but at some other person's expense. In buying from wagons I have had to reject the very same apple three times, the grower hauling his culls home and mixing them in his next load, thinking to get at least a few of them through, and no doubt he did. Now, this kind of a man will never have a crop of apples that will cause much competition on the part of the buyers; on the other hand, the careful grower takes a pride in his orchard, studies the best way to fight the different pests, keeps his fence corners cleaned out—trims, sprays, cultivates, with the result that his fruit is good, the buyers want it, and offer him the top price in order to get it; when the packing time is over the dealings have been pleasant on both sides and the grower has very few cider apples on hand as the result of the cull. A grower undertaking to pack his own fruit for storage must remember that the apple coming out of storage will not be a bit better color, have fewer worm holes, will not be any larger, bruises will not disappear, but show up much plainer than when they were put in, and that the size of the apples must conform to the standard rules for packing in order to get the market price, and last, but not least, cut your estimate of the profits in half. If I had contracted for the crop on an orchard to pick, pack and put it in cold storage, I would get me a supply of ladders, hooks, one-half bushel drop bale oak baskets, contract for the necessary amount of good, standard size, three-bushel barrels, with soft wood heads, regular barrel nails, and fix up a couple good sorting tables that could be moved from place to place. All this should be done before picking time, as the picking and packing when the apples are ready should be rushed to the finish.

In beginning the picking I would note what varieties needed attention first, and have a tree picked all around as high as a man could reach before allowing the ladders used. I would watch and see that the men did not drop their apples in the baskets, but place each one in. As fast as the baskets were filled they would be dumped on the tables for the graders and packers.

I would employ enough force to pick, grade and pack at the same time, also have teams to get the packed fruit into the car or storage every day, as fast as they were packed.

To pack a barrel I would head line the head having the most pieces in it, put four nails in the end hoop and two in each center hoop; knock out the other head and clinch all inside nail points; would then pick out a half bushel basket of nice well colored apples of as near one size as possible and double face the barrel by placing the apples, thin end down, in as neat manner as possible, and my barrel would then be ready to receive the graded apples. The barrel should be shaken as the baskets are emptied, and filled from one to two inches above the chime of barrel and head placed in. I prefer using a screw press to a lever, as it is not necessary to do so much pounding on the head. When head is in secure, place liners on, nail top hoop, turn barrel on its side and stencil the name of variety on the faced end.

All the packed apples should be rushed to storage, as the sooner they are in the better they will come out.

In some sections of this State there is so little care taken of the orchards that when they have a crop, the apples are so poor that there is no inducement to a buyer to locate and the result is that the growers sell for very little money (high price, even then), make their apples into cider or let them rot, and swear there is nothing in the apple business. If these same people would go to work and cut out the blackberry patches, grub out the sassafras and other sprouts, break up the sod and get the ground down in good shape and keep it that way, spray thoroughly and trim out from one-fourth to one-half of the top, they would soon have fruit that the buyers want, and the result would be competition, and a better price per barrel, in addition to the increase in the number of barrels of packing grades, and pleasure of having something to sell that brings the top price without having to scheme or have trouble in settlement.

Apples off of good healthy trees are worth more money to both grower and buyer than those from an ill-kept, diseased tree, and the picking, grading and packing would become a very small matter to the buyer if the grower would see that his orchard has up-to-date attention.

STORING AND MARKETING APPLES.

BY JAS. L. KEACH, INDIANAPOLIS.

The apple, from the Garden of Eden to the present time, has been known as the King of Fruits. The market for apples has been enlarged by the increased demand in Europe for both fresh and dried fruit, and the home market has grown through the advanced method of handling the crop, including the manufactured product. Enough has been said on the staple standing of the crop in the commercial column. Suffice it to say that commission merchants will readily make liberal cash advances on a prospective crop and banks will advance three-fourths the market value on the warehouse receipts for apples stored in public warehouses. The method of evaporating apples has done much to develop the trade, as our evaporated apples find their way into the markets of the world, and with the cold storage facilities, evaporated apples may be carried for several years with slight deterioration. All parts of the apple have a commercial value. The skins and cores are evaporated and find a market at home and abroad to makers of jellies, as it is possible today to make a superior quality of any flavored jelly from the peels and cores of the apple, and the bulk of the cheaper grades of manufactured jellies and fruit butters are today made from the peels and cores of apples. Cider manufacturers have made rapid strides in the manufacture and preservation of cider and a large quantity of the inferior or lower grades of apples are thus consumed. The canning industry has grown to be an important factor in the market, and they are heavy buyers, with a large home and foreign demand. Cold storage for the packing and preservation of the fresh fruit enables the packing and holding of the surplus crop and an equal distribution throughout the season, thereby avoiding gluts.

In the large apple producing sections, cold storage plants have been erected for the purpose of further facilitating the storing and marketing of the crop and obviating the heavy losses formerly sustained by shipping in the fall to distant points, as well as delays in securing cars, and also railroad blockades. The successful storing and marketing of apples largely depends on the careful handling in picking and packing. To be stored successfully, they must be perfect, as the expense is too great to justify the consideration of storing poor stuff, or stuff that has been poorly handled. The secret to cold storage is to delay decomposition. This is done by a steady low temperature of dry air, which is acquired by artificial means. The ammonia system most largely in use has given satisfactory results. The temperature most common and the one agreed on by most practical authorities is thirty-one degrees Fahrenheit. You will note this is one degree below freezing, but apples stand the temperature,

the skin acting as an overcoat and, of course, the closer fruit is kept to freezing and yet not frozen, the better you retain the flavor and retard decay. This industry to-day, although but a few years in existence, makes it possible to transport the apples from the western coast of California across the continent, thence in turn across the ocean and deliver in London or Liverpool in perfect condition, thereby opening the markets of Europe, to which points, in our heaviest export years, we have sent over a million barrels in one season. Railroad companies have in use today over 60,000 refrigerator cars and all modern constructed sea-going vessels are being equipped with cold storage apartments and refrigerating machinery. You will thus see that former risks have been removed. So complete is this work that strawberries are shipped from Florida to New York and arrive in good condition. The principle of the refrigerator car is on the same line as the cold storage, and when goods as delicate as strawberries stand these long journeys, you can readily see what can be done with apples. Cold storage is utilized for the surplus crop, or what formerly went to waste. The more southern the crop, the greater per cent. there is for storage, as in the Northern climate the apples hold until March in common storage, while in cold storage Indiana apples keep until the middle of May. The consumption of the apple increases yearly.

There remains but little to be said with reference to the marketing of the crop, and you can perhaps draw some idea of the magnitude of the trade when I say to you that at the convention of apple shippers, held at Rochester, N. Y., on the 7th, 8th and 9th of August, there was an attendance of fully 200 heavy operators that represent an unlimited capital. And of such commercial value is the American crop that this meeting attracted a number of foreign representatives, two firms from London and Liverpool being represented in person at the meeting.

You will excuse my presumption, I am sure, when I depart from my subject to say to you that a lifetime's experience leads me to say I am positive that Indiana is geographically located to market a crop of apples to a better advantage than any other State in the Union, except direct seaboard points on the east coast, and she has a climate superior for the culture, and a soil as well (for native varieties), than most States that now produce commercial apples. I am, furthermore, positive that notwithstanding the fact that Missouri stands at the head of the list in the number of bearing apple trees, a properly cared for orchard in Indiana can take from her the boast that she is the home of the big, red apple. It remains for your association to consider and it is for you to say as to whether we are to become a factor in the market and also build up a paying industry for posterity, or not. If Indiana is going to become a factor in the storing and marketing of fruit, you must take up the work through your colleges and through your Farmer's Institute meetings. The State should be interested in this work, as it will increase the wealth of the State, and many acres of what is now looked upon as

worthless hills can be utilized to a profit in this industry. Our government at Washington will gladly give you the benefit of their experiments, and if you think this amounts to nothing I would suggest that you pay a visit to the orchards of States that think different, and see the contrast. It has been shown that with proper care apple trees in other States bear a fair crop every year, and I believe they will do so in Indiana. But you must be practical to raise fruit. You must first raise the tree and then it must be cared for. If such subjects as spraying, cover crops, proper pruning and intelligent cultivation are to be set aside as the hobby and theory of the college dude and denounced as impractical, without consideration, we are going to make slow progress.

Let us ascertain what other States do for the advancement of this work, and I am sure our State will do as much. There is today many young apple trees coming on and it is the duty of this Society to see that the owners of these trees have the latest and most scientific knowledge on the culture of same. Our State should look to Purdue University for an active interest in this subject. Other States are carefully teaching agriculture and horticulture. What study can be more healthy, more elevating and more practical? What study today presents to the youth a more independent future than advanced and scientific farming? Cities build for future generations and it is the duty we owe to the youth to see that this work is carried forward in an aggressive and advanced manner. Governor Mount advocated the teaching of agriculture in our public schools and many scoffed at the idea, and yet I had the pleasure about that time of reading an article in one of our leading commercial papers, stating that the Czar of Russia had made it one of the leading studies in his public schools.

I will conclude my remarks by saying I travel all apple growing districts, and have endeavored to confine my remarks to personal observations.

STORING AND MARKETING APPLES.

BY H. H. SWAIM, SOUTH BEND.

For the commercial orchardist the problem of storing and marketing fruit has been very much simplified by the advent of the cold storage system, by which apples can be kept the year around, thus equalizing prices and giving a much longer time in which to dispose of them. But for the man with a small orchard who sells in his local market this is hardly practicable; he must store his fruit upon the farm or sell at picking time, which is the season of the lowest prices.

Perfect cold storage is the ideal method of keeping apples and the nearer we can approach it in a farm storage the better. I have found a cave built in the side hill, arched over with brick and covered with dirt and sodded, very satisfactory, but we do not all have side hills, and for those who are so unfortunate I would recommend a building double walled with air spaces between and lined throughout with building paper. I have seen such buildings that gave very good satisfaction. But after all, very much depends upon the quality of the fruit. There is no system of storage that will make first class apples out of culls, and it will never pay to try to keep any but the best, and they must be handled with the greatest care and should be stored as soon as possible after picking.

Marketing apples has been a very simple matter for the past few years. You only have to make it known that you have them and you will have plenty of buyers. If you are near enough to a good local market to be your commission man, and have the apples, the rest is easy.

W. D. Thomas: I am glad to be present and hear the subject that has just been read. Mr. Keach has not only touched upon the subject assigned to him, but he has touched generally upon the possibilities of apple growing in Indiana. Now, I know nothing about cold storage, and the management of the fruit after it is ripened. I have made some observations that might be profitable to the people in this audience. I have just recently, within the last twelve or fifteen years, entered into the growing of fruit. I was raised on a farm, when farmers grew fruit a good deal like the majority of people grow it today. The growing and gathering of apples is a thing that is very much neglected with the common farmer. My opinion is that apples should be gathered when they are ripe, not too ripe. They should be picked carefully, selected possibly while picking, and carry them immediately to its storage, if possible to a good cool cellar, where it is put into a box, perhaps a bushel and a half box, put the top on it, make it almost airtight. My method is to put them in boxes and pile the boxes one upon the other until I pile it full to the ceiling. Along in the middle of December, I go into my cellar and take down a box—I have two—one sitting to one side of me and one on the other side. I sort them over. Every one that is perfect I put into one box, and every one that is imperfect I put into another. I mark the perfect apples, and market them. I have been able to keep the Grimes Golden by this process until the middle of May in the cellar. I have been able to keep the Winesap until the middle of June in perfect condition. First simply sort them and put away the perfect ones. All the imperfect ones I consume or sell.

A great many things could be said that are interesting and profitable to the general farmer, but there are more that wish to talk a little upon this subject, therefore I will defer any further remarks.

MAINTENANCE OF SOIL FERTILITY.

BY E. M. C. HOBBS, SALEM.

At this hour, after the most thorough consideration of the apple from the start to the finish, from the "cradle to the grave," it would seem that all has been said, unless in keeping with the year, and hour as well, we should discuss the taste or appetite, and the control of the same in a year like this, when many of us are most likely to go longing about for a red apple, that will be a rare luxury with many of our people this coming winter. But to fulfill the letter of the program, even if the spirit of the meeting has gone after the red apple, or more correctly, after dinner, I will review a few thoughts concerning the fertility of the soil and how the fertility may be maintained. It seems to be an undisputed proposition that the orchard of fifty or sixty years ago bore well and the trees grew vigorously. Let other things be as they may the soil was then all right—all sufficient for a good crop. Whether the soil was loam, clay or sand; carboniferous, subcarboniferous or drift; low or high, the testimony of our parents is one of harmony: that Rambo, the Bellflower, and Milum, etc., were loaded with fruit year after year. And, oh! how luscious they were—and how well they kept!

There are many orchards in our State bearing well today, but yet others that seem from some cause to be making repeated failures. Various causes may be assigned for these failures. Among them we frequently hear mentioned that the orchard has exhausted the soil—that it is starving to death. Whether this be a principal cause or not it is quite probable that the partial exhaustion of the soil of some of the elements is a factor in the makeup of these conditions. Granting this to be true, then two questions arise:

1. How to replenish the soil with the elements that have become short?
2. How to prevent the conditions from approaching in our growing orchards?

I think it quite true that the farmer, horticulturist, orchardist gets the best results from his labors when he works in harmony with nature, follows her ways and adapts his methods to her principles.

As nature has made the soil, let us go and do likewise. As virgin soil has been made rich and at the same time grown the forest, may we not do likewise—grow our orchard and improve the land all the while? Yes, and improve on nature in speed.

In consideration of the elements in the soil that may be plentiful or insufficient, there are but about thirteen used by the plants in their growth, all but two or three are found in all soils in abundance for all

our crops and orchards as well. Potassium, phosphorus and nitrogen are the only elements, say the chemists, that may be short of the requirements of the orchard. The potassium and phosphorus exist in the soil in large quantities as compared with what any crop needs, yet small quantities, as compared with the entire makeup of the soil. The surface soil of an acre to the depth of twelve inches, where perfectly dry, weighs about 5,000,000 pounds. These two elements vary from one-tenth per cent. to one per cent. in the soil. Then we have in the first foot, at the lowest rate, 5,000 pounds of each, and the second foot probably as rich, and the third as good, and so on, and in some of our better soils many times these figures. The phosphorus in the form of phosphoric acid is several points ahead of the potash. These elements are not available as plant food but in small quantities at any one season.

Nitrogen exists in the form of nitrate throughout the soil for many feet in depth, but as ammoniates, form as plant food mainly in the upper portion of five to ten inches. These elements are needed in both tree growth and fruit growth, yet in different proportion.

The problem for the orchardist is to assist nature in rendering available sufficient amounts of these year after year to meet the demands of the orchard.

What are the forces to be used to accomplish this work? Namely: Sunlight and heat, air and water, freezing and thawing, cultivation, vegetable growth, chemical changes produced by vegetable and mineral additions, and work of animal life. The sunlight and heat renders available phosphoric acid and potash. The air, by means of that active agent oxygen, disintegrates the particles of soil and renders them into plant food. The water dissolves, forms solvent liquids and renders its share of prepared food. Freezing and thawing take their turn at the same great labor and contribute no small result. Cultivation assists these named forces and in an auxiliary way renders its power. The growing vegetation, by its root growth attacks the particles of soil and renders them available for a growing plant and for those that may come after, and may gather valuable plant food from the air as well. The chemical changes which vegetable matter, such as green manure and farmyard manure undergo in the ground, greatly increases the decomposition of soil particles, and the mineral and animal additions in like manner act in the same way to the common end. And last, but not least, the world of animal life—insects, worms, and bacteria, all play their part well in improving the soil by contributing their life and energy to the changing of mineral and vegetable matter into plant food, and, in addition, gathering nitrogen in some unexplained way from the air that becomes plant food.

The thoughtful orchardist adapts his work to these forces and gets the largest results from these sources. In this connection it should be remembered that the more favorable conditions for one force to operate, with good results, may mean and often does mean less favorable circum-

stances for another force to contribute fully its profit. So our methods work a series of profits and losses, a series of compromises.

The heat of the sun and air do but little unless they can get to the soil for their work. The hard clay soil not cultivated and mulched, retard their efforts, but the well-worked surface afford a more favorable opportunity and they lose no time when favorable conditions exist.

Freezing and thawing are valuable forces when the ground has a light or sufficient mulch, but on exposed uncovered land the bad conditions attending reduces the profit from this source.

The bacteria works large returns in conjunction with the leguminous plants and in moist, warm soil full of vegetable matter.

METHODS.

In order to use these forces to good results, one of two general methods is advisable. The constant cultivation or the seeding to permanent growing of a green crop.

First. In the one method the ground should be thoroughly cultivated from early spring to late summer. At the last cultivation sow the ground to rye, oats, peas, or like crop for mulch in winter and spring. The cultivation should be shallow and with a disk, cutaway or spading harrow, followed with smoothing harrow. This should be continuous until early fruit has matured and on later fruit until August, which latter date would be as late as a good mulch crop could be grown safely and surely. Rye and oats at a late date are only reliably sure. In early August cow peas may be used, and with favorable weather will give sufficient mulch.

Second. The orchard, after the three or four years of cultivation in the start of the trees, in which some other crops are grown, is seeded to clover or some kind of grass or grasses and kept in such crop constantly. There is no better growth for the improving of the soil than the clovers for the orchard. It keeps the soil loose—a condition favorable for holding moisture, air circulation, bacterial effects, etc., besides its own ability to improve in various ways. It affords a good mulch in winter and prevents washing. Some one is ready to say that clover will die out. Clover is good for two or three years. This very objection is the best argument known for its use. The plant at its death surrenders its roots, crown and stems to the forces of nature to be decomposed and rendered largely plant food. It is but a reasonable estimate that two tons of this vegetable matter is left in the soil with the death of an average crop. The cow-pea is a great soil renovator from the fact that it makes a great growth and dies in one year. The objection that the seed is expensive, is not reasonable. A good article generally costs a little more than a poor one. It might be mentioned here that blue grass and orchard grass are objectionable from the fact that they do not die and surrender their roots and bodies for other plants,

The spring following the winter that has finally ruined the clover crop disk the land, run a smoothing harrow over it and reseed. But little seed is needed, for much old seed will be found in the ground. This work should be done early to get the most out of the seed in the ground. On some clay soils where clover grows less surely, some grasses may be used with profit. The orchard and blue grasses are used by many. The danger to be guarded carefully is to avoid pasturing the land too much. This pasturing tends to pack the land and lessens the amount of mulch that should cover the ground.

BARNYARD MANURE.

On the poorer clay land it is with difficulty that clovers can be started. On such land the work of the clover is very much needed and barnyard manure should be used as a top dressing, not so much for direct profit to the trees as to make sure the work of the clover. A few crops of cow peas would make conditions favorable for clover growing.

COMMERCIAL FERTILIZERS.

Commercial fertilizers may be used with profit in many parts of our State during the first few years on the cultivated crops, between the row, and at the time of seeding to clover or grass. A liberal supply on our orchard land during these years will be profitable not only to the crops in cultivation, but to the tree growth and fruitage as well.

In conclusion, I would say that many orchards are in poor condition because they are made a pasture lot or field. The result of this pasturing is to exhaust the land of the water that the trees need, and removing the vegetable matter that should rot on the land and act as a mulch for the soil.

DISCUSSION.

Joe A. Burton: I would like to ask Mr. Keach one question. Does Grimes Golden retain its beautiful color and its high flavor in cold storage?

Jas. L. Keach: This I will say, however, Grimes Golden or any apple would be better at maturity on the tree. I don't mean to hang on the tree. I mean they should be picked at regular time, or picked when the apples are matured. The Grimes Golden will keep their beautiful golden color as readily as any apple.

Prof. Jas. Troop: I will say, Mr. Chairman, that personally I have had very little experience in keeping up fertility in the orchard, because our orchard requires no fertilizing to keep the soil in good condition. All I have tried to do is to keep cover crops on the orchard. Have no use for the commercial fertilizing with us.

Mr. Hale: I have a few words I would like to say on the subject we passed over without any discussion, that is spraying. Now, spraying does a great deal to kill the worms in the apples. Worms are not always harmful to all apples; in fact, I like worms in my early apples. I don't like those big fellows, but the little fellows that ripen up the apples before their time. You can pick them up and sell them a month earlier than usual. I have had a good many of the Red Stripe and Maiden Blush marketed at better prices than if they had stayed on the tree longer, due to that little worm that ripened them up. I am much obliged to that little worm for doing this.

President Stevens: We will now take a recess till 1:30.

WEDNESDAY, 1:30 P. M.

President Stevens called the meeting to order and resumed the program.

President Stevens: This afternoon's program is largely by the ladies, and we are pleased to see them well represented here. We will begin at once. The general head this afternoon is "Ornamenting the Home," and is given under several subheads. The first is "The Yard and Lawn," by Mrs. Stevens.

ORNAMENTING THE HOME—YARD AND LAWN.

BY MRS. W. W. STEVENS, SALEM.

This subject is of as much or more importance as any of those to be discussed this session. As none of us "live for ourselves alone," it becomes our duty to make the surroundings of our home just as beautiful to those outside of it as it is to those within its gates. An ugly, unsightly dooryard or lawn is a blot on the fair face of nature and those who allow either to exist are defrauding themselves, their neighbors and every passerby of that beauty that we now begin to consider as essential as are the essentials themselves. Such ones are not much less to be endured than those who beautify their home grounds and shut it in from the world by high fences or hedges and barred gates.

The treatment of yards and lawns is quite or should be quite different. The word lawn suggests an expanse of green leading from the house front to the street or highway, while yard seems to mean a much smaller

area enclosed by a fence and at the side or rear of the dwelling. The first and most essential feature of a lawn is size, especially depth. I know that many homes have but yards where there should be lawns and this can not be remedied. The first and most important step in beautifying a lawn is to get a fine sward. This can be done easily in some localities and is very difficult in others. There is nothing more pleasing in lawns than individuality. Don't let a misguided neighbor or "ready-made" landscape gardener induce you to dig up a magnificent old tree of any kind to plant out a "weeping monstrosity" that will be inclined to make you weep as the years go by for its failure to weep at the right time and in the right place. Neither would I have you grub out a fine lilac, snow-ball or a well-grown shrub to put in its place an evergreen or box-wood whose only mission in life is to do just exactly as man has directed and that is to look like an artificial sentinel on dress parade. Guard with care any out-cropping of rock ledges of prominence, and don't be too hasty in the cutting down of high and filling in of low places. I know how all important it is that the lawn mower be kept going, but there are other things to be thought of besides closely shaven grass. If the lawn is large, as it should be, no tree will be so large as to dwarf it, but if it is small it is apt to suffer from comparison with large trees. If it be too shallow from street to house this can be remedied in a measure by planting closely along its sides with trees and shrubs and by a straight, closely planted avenue of trees direct from the house to limit of lawn. The present style of low browed, rambling colonial architecture is very trying on lawns unless they are deep ones, and those contemplating building houses of this kind should not make the mistake of not securing lots with room for a lawn. If there is plenty of shade in the rear or sides of the house, the lawn should not be too closely planted. A few real fine trees with room enough to spread as God intended them to, and possibly a clump or group of mixed kinds growing together will give a much better effect than many scraggy or straggling specimens scattered at regular intervals all over the grounds. I, myself, would never plant flowers on the lawn as an ornament. The only place for them would be as a border to the shrubs or shrub border that flanks the ideal lawn.

How many pleasant recollections one has of dooryards bright and cheery, "not too good for human nature's daily food," with no signs of "keep off the grass." Here there is no attempt to be made of grandeur or an awe-inspiring nature. The only absolute essential is cleanliness, all else is detail. If the family be a flower-loving one, it is wonderful how many flower beds can be made in a yard of even very modest dimension, how many lovely vine-covered trellises, how pretentious a summer house it may contain, and if the girls are ingenious no mean "lover's lane" can be arranged by following serpentine paths and flower-bordered walks that eventually lead to a rustic seat too large for one and scarcely large enough for two.

Yes, the comfort and pleasures that are possible for an entire family in a yard even though it be the despised back yard, are limitless. The man, woman or child is to be pitied who has no claim on a yard, and the one who has is inexcusable if they make no effort to make it as ornamental as is possible with the time and means within their power.

A roomy, well kept lawn reflecting the taste and individuality of its maker is the setting of the jewel—the house—and well repay all the care spent upon it.

The fence that surrounds the lawn and the gates that lead into it are of great importance. The huge gate-posts and heavy stone fence that seem to be the full complement of the several-acre lawn of the suburbanite would be as much out of place on the fraction of an acre lawn as the low wire fence and artistic gate seem enclosing city lawns would be on the farm. And the heavy, close fence or tall hedge is surely out of place anywhere except to keep in or keep out some unsafe person or animals.

THE YARD AND LAWN.

BY H. H. LUYSTER, FRANKLIN.

It is certainly an unusual thing to place an old white haired fellow who has been raised on a farm, and educated in a country school, like myself, on the program of a State meeting, to talk to you about the ornamentation of the yard and the lawn surrounding the house.

Do not understand me to say that I regret the fact that I spent the earlier years of my life in the country, where I received my best impressions of home, amid the quiet, gentle, but far-reaching influences surrounding a town in the country. I feel that I have lost nothing by having spent my boyhood days in the country, and largely to that fact I attribute my love for the beauties of nature, as shown in leaf, blade, and flower.

Three things, I think, are essential to the most successful adornment of the yard and lawn, namely, trees, grass and flowers.

Those of you who were so fortunate as to visit "The White City" during the far famed "Columbian Exposition" at Chicago, will remember the wondrously beautiful buildings, bridges, statuary, and streets, all in pure and spotless white. And on your first entrance, how superbly beautiful and grand it all seemed. And so it was. Doubtless, however, you will also recollect as you traversed the streets admiring the ingenuity of man in the construction of those magnificent structures—how, by and by, the eye of the beholder began to weary of the intensely glaring, dazzling brightness.

You will also not forget, in leaving it all for your homes, the deep restfulness to the eye, of the woods and fields, all clothed in green. A kind, benificent Providence, thoughtful for our comfort and welfare, has given us His best in nature, almost wholly clothed in green, of which color the eye never tires.

So, then, the trees draped in their lovely foliage, the grass with its soft carpet-like spread, the flowers in such infinite variety of form and color, and framed in their setting of green, are offered to us in all their beauty and fragrance, with which to ornament the surrounding of the one place on earth, which should be to us the dearest and most attractive, the home.

Happily our preferences and our tastes differ so widely in using these good things that we are in no danger of complete uniformity, which is not desirable. To my view, the form and extent of the yard or the lawn, should be considered in the plans for their improvement and ornamentation. Too many trees, shrubs, and vines often detract from their otherwise handsome appearance.

A niece of mine in Yuba City, Cal., contrary to the usual custom, devotes the most of her time to the care and improvement of her yard and lawn, and lets her daughters attend to the indoor work. The front yard is filled with beds of plants, and flowers, but the back yard with a nice little strawberry bed in a corner, with a few small orange trees, a few roses, and vines, with the nicely trimmed grass makes it even prettier than the front with all its wealth of bloom. Too many trees and too dense shade also will not permit the grass to do its best for us. Annual winter sowing of grass seed in the shaded places where the grass is thin will assist in preserving a stiff soil, so desirable in a yard or lawn. In a lawn or yard neatly arranged and nicely kept a seat here and there will add to its attraction. A room nicely furnished and richly ornamented would be seriously impaired in its appearance without seats. Of course, we can not all satisfy our desires for the best things in this line. We may not have the wherewith to produce the brilliant effects seen in Lincoln Park, Chicago, or the exquisitely beautiful lawns as in Pasadena, Cal., but we can each, in our way and in accordance with our ability, so beautify our home surroundings as to make it the place of all others to which we want to go.

A few years ago an intimate friend and I often passed in our trips to Sugar Creek, an humble cottage in the country, evidently the home of people quite poor in this world's goods, but always, in spring, summer, fall, and even in winter, our eyes would be greeted with bright plants and flowers in yard and in winter in the windows, bringing pleasure and joy to travelers and doubtless supreme satisfaction to the dwellers therein.

SHADE TREES.

BY I. N. COTTON, INDIANAPOLIS.

The selection of shade trees is a very important matter, for a good shade tree is not obtained in a few days, months or years. Therefore, we should be careful what we plant, looking to the future as well as the present, and plant trees that will be durable. There are many points to be looked after in a good shade tree. First, durability; second, beauty in the symmetry and density of the top, and its natural propensity to grow compact, without much trimming, and that it does not drop its leaves until frost comes, for the tree that sheds its leaves all summer is a nuisance as a shade tree.

Much depends on the kind of soil the tree is to be planted in, for the forest tree only grows to perfection in certain soils. If you have a damp clay soil you may plant the soft maple, for it is at home there; but on a dry, sandy soil it is a failure. For example, see the soft maple in Indianapolis, where it is a failure on this dry sandy soil, while in Lebanon, Boone County, on its damp clay soil it succeeds well. In their native haunts you find them in the wet clay soils, or in some low bottom land where the roots reach water. The sugar or hard maple is a native of a dry sandy soil, and on this kind of land you find all the sugar orchards of this country. The linden also grows in a black sandy soil and is a fair shade tree.

What to plant on small grounds and on city and town lots? I would plant the sugar and the Norway maple, and little else in dry sandy soil; perhaps a few lindens, for on forty feet lots you should have trees grow uniform in shape and height to look well. In larger grounds and parks you may plant a larger variety. The white elm, when older, has a weeping appearance that is pleasing to the eye.

Plant no tree that is scarred or scrubby and has not an upright top. For an example of what you do not want see the Marion County court house yard. The trees in it look as if they had been taken from third-class culls. Trim your trees well up when you set them, at least eight feet distant from the ground to the limbs; do not increase. All trees grow from the outer ends of the limbs and not from the base. By trimming well up you have a better circulation of air, a better lawn and a better chance for flowers and shrubs, and it will be more pleasant to yourself than where you have to stoop your head to get under its shade. Let your trees grow well up, for the cozy cottage or the stately mansion looks more artistic through the green leaves and is cooler and more healthy than where the sun beams directly upon your house. Cut in straggling limbs and balance the top well when setting, but spare the

knife as much as possible, and after setting keep the professional tree butcher away from your trees, who has ruined more trees than all the causes known to man, both in health and beauty. There appears to be a mania in the present age for the mutilation of shade trees. Go where you will, in the village, town, city or country and you will see the work of the tree butcher, who has not the least idea of the form of a beautiful shade tree. Oh, but that he would take a few lessons from nature! The most beautiful shade tree that you can find is one where the breeze has wafted the seed of the sugar maple to some nook or corner of your farm where it has grown up unaided by the hand of man, or un mutilated by the butcher. Let us aid nature, but not retard her.

Some complain of the slow growth of the sugar maple, yet at the age of ten years I found in my grounds that it made more shade and was more beautiful than any tree I had. The quick grower is soft wood and short lived. When you have set the sugar and Norway maple, properly pruned, it would be safer for the average man to throw away his pruning knife, for the man who has had his leg amputated is ever afterward feeling for his toes.

The tree—the ornament most effective to all domestic buildings, grateful to the eye, always an object of admiration and beauty, delightful in the repose they offer in hours of lassitude or weariness an indispensable feature to a beautiful home, for he who can build a house either in the valley or on the hill-top and leave it unadorned with the beauties of nature will find himself inadequate to enjoy that Celestial Home eternal in the heavens.

“He who plants a tree
Plants a hope.
Rootlets up through fibers blindly grope;
Leaves unfold unto horizon free.
So man’s life must climb
From the clods of time
Unto heavens sublime.
Canst thou prophesy, thou little tree,
What the glory of thy boughs shall be?
“He who plants a tree
Doth plant love.
Tents of coolness spreading out above
Wayfarers he may not live to see.
Gifts that grow best,
Hands that bless are blest.
Plant! Life does the rest.
Heaven and earth help him who plants a tree,
And his work its own reward shall be.”

SHADE TREES AS ADJUNCTS TO THE "BEAUTIFUL HOME."

BY MRS. J. W. MOOREHOUSE, ALBION.

When Webster defined the word adjunct as something added to another thing, but not essentially a part of it, I am inclined to think he overlooked the possibility of a beautiful home without shade trees. Anywhere in the wide world shade trees are essentially a part of the beautiful home.

Home, a dwelling place, the house in which one resides. It may consist of but four plain walls built of unhewn logs, without walk or lawn, shrub or flower to relieve the bare appearance called home. Or, as Dryden puts it, "Home, the social refuge of our life."

No matter whether high or low, plain and unattractive or commodious and grand, it readily admits of qualification.

But here we have a finer distinction. "Beautiful home." Pleasing to the eye and all the senses. All that wealth can buy has been gathered together, science and art have been employed. The experience of ages in building and decorating has been considered and improved upon, and we behold the mansion of the wealthy, the palace of the rich. The exterior stands out harmonious in height and width and curve. The interior embraces all the modern conveniences with the most elaborate polish and finish, the "Beautiful home."

Respected admirers of the beautiful, while you are experiencing the magic effects of the works of science and art found in homes of the wealthy, you will also be charmed with the magnificent scenery that usually surrounds you; in the enchanting landscape that opens to your view, where there is almost infinite variety. True the art of man has been there laying out grounds and arranging trees, shrubbery, etc., in such a manner as to produce the most pleasing effect. But these scenes after all are the simple and spontaneous effect of the matchless hand of nature, which man with all his ingenuity, although he may imitate, can never equal.

No landscape, however admirable in other respects, is complete without shade trees, and can you imagine a beautiful home standing directly upon the bare pavement and extending to the alley? Does not your imagination carry you at once to that home standing just far enough from the public highway to admit of a little seclusion and privacy, with a driveway flanked on either side with tall overhanging shade trees? Of a hot summer day (in the month of August, for instance) turn in here from the dusty highway and you experience a cool breeze invited by the shade of these trees as delightful to your feelings as water from the fountain to the palate of the thirsty traveler. Such effect have shade

trees upon the human mind and heart that the poets and sacred writers not infrequently imagine the woods to become vocal, and participating in the delights they impart, lift up their voices in praise and gratitude. To the works of art we can give length, breadth and thickness; we can also color them with appropriate shades; but who can measure the productions of nature in the varieties of her trees? Who sketch with such matchless skill? The painter may select individual objects—a lofty tower, an ancient castle and the larger creations of landscape. These he may, by a judicious disposition of his materials, form into an entire whole, but the effect is one, it changes not with the seasons.

Shade trees are especially for the shade they afford. As adjuncts, then, to the beautiful home they should be so disposed as to afford shade where it is desired, and not elsewhere. The writers of fiction can describe their distribution better than I can. As the story goes they are usually found where lovers chance to meet. In cities, trees that grow to a great size should not be used. In villages and country homes the inhabitants may have a wider selection. Here elms and hard maples, beech, sycamore and lindens. The oaks, walnuts, and hickory may have full scope to grow and spread, giving shade and adding grandeur to the scenery.

It is one of the pleasant features of farm life that the home may be shaded with varieties that in time will become giants, and yet which will, while growing, shade the lawn about the homestead and furnish a grateful resting place from the noonday heat, or a pleasant place where the family may gather after the labors of the day to enjoy the summer's twilight while engaged in pleasant chat, or listening to the evening song of the birds which are drawn thither.

“Who raised on high yon lofty mountains brow?
From the dry rock who made the waters flow
So clear and artless—pouring through the plain
Health to the sick and solace to the swain?
Who made those trees in majesty to rise?
The great Creator, nature all replies.”

THE SHADE TREE.

BY W. C. FREEMAN, SECRETARY STATE BOARD FORESTRY.

The shade tree is an object that is attracting a great deal of attention now from both the people of the city and the country. The things which greatest concern them are the selection of species, propagation and care in the various features. The tree planting spirit and habit is without question better established in the city, but the people of our rural com-

munities are energetically awakened and enthused to the necessity of planting trees around the premises, on the lawns, on public grounds and along the highways and drives for the purposes of shade, embellishment and protection.

I take it that in the presentation of this subject that the things you want discussed are the essentials which go to make a good shade tree in the triple sense meaning of shade, ornament and protection, and for planting in all the places that such a tree may be demanded. That you also want to know the species of trees that I consider the best to plant and my reasons for their selection. Also, that you want advice as to the methods of planting and care of trees against injuring causes. And that all of these things are to be brought before you in the light of the most economical and practical plan of execution.

In the matter of the selection of shade trees, I do not believe that any kinds of trees can be chosen which will better meet all the requirements and conditions than our natural forest trees.

Of these I would give prominence to the following: The sugar and red maples; the scarlet, red and black oaks; sweet gum, white elm, lin, yellow or tulip poplar, white ash, flowering dogwood, redbud, honey and black locusts.

Of foreign trees the long leaved pines, arbor vitae and Norway maple are excellent trees, but do not come so cheaply and conveniently near the conditions of every one.

I recommend the sugar and Norway maples because of the beautiful, large, round, compact crown of luxuriant foliage which is unexcelled in its verdant green during the spring and summer and the beautiful autumn tints that are almost impossible to portray in colors by the most skilled artist. Under cultivation and good care they are more rapid growers than usually accredited. For all uplands and ridges where the soil approaches clay and possesses a fair degree of moisture, though not wet, these trees have no equal and at an early age attain a symmetrical figure. The same may be said of the qualities of beauty in the red maple. It, however, is a rapid grower and must have wet soil for successful growing.

The scarlet oak, a large, handsome tree of stately bearing and symmetrical crown of long, broad, deeply scalloped, smooth, shining leaves of verdant green on both sides in summer, but which turn a bright red in autumn and persist till freezing, together with the grayish colored slightly furrowed bark, make this a most desirable tree for planting on light, dry sandy soils.

The red oak is a large tree with a deep rounded crown of dense foliage, but free from heaviness; verdant green in summer, but of deep red and orange tints in autumn, which, with its clean limbs and trunk, makes it a fine tree to plant in most every soil and climate.

The black oak, a tree not so symmetrical and compact of crown, but with the red leaves of spring, which become silvery green in summer and

a russet reddish hue in autumn, makes it a beautiful tree for poorer soils.

What has been said of these three oaks might be said justly of nearly all the oaks. They are not the most handsome trees at an early age, but are deep rooters, good growers and soon overcome their ungainly features and are highly ornamental and persistently permanent, and selections can be made to suit every soil.

The sweet gum, a beautiful original tree in its own form design with a deep conical crown of compact bright, shining, green, star-shaped leaves which turn a crimson bronze in autumn, and the upper curve of the lower branches places it in the front row among ornamental trees. It is a rapid grower and suited to every soil from dry, sandy, to cold wet. It ranks next to the sugar and Norway maples for beauty.

The white elm, the recognized tree for avenues, is too familiar to take your time for any description. It is best for large lawns, parks, highways and streets because of its great size, wide spreading head and long, slender branches. It is suited to all moist soils and is most defiant to storms.

The lin is a handsome majestic tree, possessing a large, dense conical top. The dense foliage of broad, smooth, green obliquely, heart-shaped leaves and light apple green bracts and pert looking balls of fruit should cause us to study earnestly before leaving this tree in making a selection. It is a common tree in all rich, moist soils.

The yellow or tulip poplar is a large, beautiful, fast growing tree in all light, rich, sandy soils. In the open it is sometimes branched almost to the ground. In the spring it is covered with tulip-shaped flowers which it throws out as unconsciously as if it were some wayside flower. In cultivation it is a great favorite and possesses a high bred expression. The bell-shaped flowers, tinged with orange and greenish, yellow colors, the broad, clear, green leaves, which, by their petioles, tremble constantly in the breeze, and the clean, gray color of the trunk and branches, should attract us to it for ornament alone.

The white ash is an especially handsome tree of good, rapid growth. It forms a deep symmetrical head of dense, lanceolate, oblong leaves green on upper surface and pale beneath, which feature adds to its beauty as the leaves are swayed in the breeze. The clean gray bark of the trunk and the greenish gray of the branchlets are other marks of beauty. It is a summer tree from the fact that its leaves put out late and fall early. It grows in most all soils, but best in moist, rich.

The honey locust is a large handsome tree with an abundance of fine, light foliage. The greenish white flowers which hang in racemes in spring add to its features of beauty. The objectionable features are the thorns and liability to spread. It is adapted to all low, rich soils. The same things may be said of the black locust, except the thorns, which seldom occur on it.

All these trees described, when grown in the open, have harmonious proportions of development, and average at maturity from forty to sixty feet in height. They root deep and are defiant to storms and hardy against injury.

Of our forest shrubs I find but a few well suited for landscape embellishment. The best of these are the dogwood and the redbud. The dogwood is so familiar to us by its early, cheery message of spring as it whitens the woods and banks that we fail to give it a just place as a tree for lawn planting. The foliage of this tree also contributes largely to its beauty. Its heavy, dark green leaves of summer, which turn a brilliant hue in autumn and the bright red drupe of a fruit make it an ornament of striking beauty and of longest season. Under cultivation it attains a height of twenty to forty feet, with a broad, roundish crown. It is common on high, dry ground, but can be grown successfully in any well drained soil.

The redbud is a small, though handsome, tree at all seasons of the year. It is a pleasant sight in early spring when radiant with its exquisite bright blossoms which appear so eagerly that they almost cover the tree trunk and limb and make the whole appear like a profusion of deeply tinted peach blossoms when seen at a distance. When given good soil and room it grows rapidly to twenty or thirty feet and is charming for parks and lawns.

The qualities of each of these trees described, though briefly, are the essentials which go to make them admirable trees to plant. The cause which has kept most of them from prominence for ground decoration is the common estimate we give them. We have become so accustomed to seeing them that we do not accord them a just regard as trees of ornament. We are like the characters in that renowned lecture, "Acres of Diamonds." We are in the midst of what we are looking for elsewhere and do not recognize the wealth within our grasp. These trees can not be over-valued in making selections for lawn, highway, drive and park planting when they are planted in the right soil and the soil conditions continue suited to their requirements.

The successful growing of these trees depends on the manner and time of planting and the size and transplanting treatment given the tree planted in the first place and the care given it after it has been planted. When the tree is dug for planting it should be done with the least possible injury to the roots which should be taken up with as many of the fibrous roots preserved as can be. The ends of the large roots should be cut smooth that they may callous over readily. The roots should be kept well moistened till the tree is transplanted.

The excavations should be made large enough to allow the roots to be placed without cramping them. A good excavation is one of three feet across and the same in depth. The soil placed around the tree should be heavy, rich soil, never light and loamy, as such will not pack closely

around the roots. The tree should be set a few inches deeper than it grew in the nursery. The excavation should be filled completely and mulched over with rotten straw or sawdust to prevent too rapid evaporation.

The better time to plant, I conscientiously believe, is early spring, and that stock which is to be shipped may be on hand at the first favorable time to plant, it should be procured the previous fall and heeled in over the winter, which, if properly done, will add much to the successful life of the tree.

The size of the tree has much to do with the success of living. It is a sad mistake to plant directly a tree of two or three inches in diameter and of six or eight years' growth. There seems to be a prevailing opinion that the larger the tree planted the quicker it will form shade. Unless such trees have been given a process of prunings and transplantings to establish their form and root system, a far greater and earlier degree of result will be obtained by planting smaller trees. For good success in direct planting I recommend that not over three or four-year-old trees be planted. Trees of these sizes, carefully dug and planted, grow from the beginning and form perfectly. The sacrifice necessarily made to the root system in digging these larger trees and the stumping of the top which is usual and necessary to do, is a shock from which it takes several years to recover and impairs the physiology of the tree and thus makes it a victim incapable of resisting tree diseases.

You can always get good trees from the reliable nursery firms, but should you not desire to purchase them you can find them abundantly in forests, thickets and fence rows throughout the State. You can make them what you want by treating them to transplanting processes in your gardens, though time is eliminated by purchasing from nursery firms in which it is a business well done.

The pruning of shade trees, I believe, is a thing largely overdone. At planting, the top should be pruned to accord with the root system, but after that I am an advocate of the motto, "Hands Off!" Except the clipping of stray branches, sapping sprouts and affected parts, nature will form a better tree than all the ingenious devices of the tree trimmer. I do not believe there is any more justness in the extreme surgical treatment of trees than there was in the past extreme surgery to which the human race was subjected.

The rural communities are better in these respects than are the cities. Better shade trees are found in the country, both of form and condition. This is largely due to the better moisture conditions and the fewer subjections to injury, but a great amount of it is due to the "let alone" treatment.

The street paving injury to shade trees is perhaps one of the most damaging of all. By it the trees are deprived of roots, rooting chances and moisture. Street improvement is an extensively expanding movement now. By the plan usually employed a wall of adamant is placed on both

sides of the tree, which demands the sacrifice of the roots in the first place and in the second place allows no chance for the roots to penetrate outward to gather moisture. The paved street quickly conducts the rainfall into the sewers and away and the trees must depend for subsistence upon the narrow strip of soil left them between the street and walk. As most of the trees planted in the past were soft maple, and as they demand a great quantity of moisture to live, they simply can not survive the conditions. Thus it is that city shade trees are dying annually by the thousands, while a very great part of them are affected and making no progress.

In addition to these abuses they are barked, hacked and otherwise injured by the workmen in paving. In these weakened conditions they are, in addition, overtrimmed.

To alleviate these consequences it seems that two things, at least, are necessary. Trees of deep rooting and less moisture requirements must be planted, and a different plan of street improvement adopted. In the first instance I know of nothing better to plant than our forest trees, which I have recommended and which grow on drier soils. In the second place, put the walks next to the street, thus leaving one side of the trees' roots unharmed and unhampered to gather substance.

Another cause that is destroying trees to a greater extent than is realized is the burning of leaves and rubbish near them. Fire is an unnatural heat to trees and the least of it causes sap boiling, which later on is shown by the bark's cracking and falling off, leaving a dry, dead exposed surface of wood. Absolutely no leaves should be burned where the heat will extend to the trees.

If insects bother the foliage, use some of the following sprays: Sulphur solution, kerosene emulsion and arsenical washes. Most any druggist can advise you how to use and can prepare them for you. Grease bands may be painted around the trees as a good protection against caterpillars. Twigs badly infested should be pruned and burned. The nests and insects may be gathered and burned by means of tarred cloths on the ends of poles. I shall leave this feature for discussion.

In closing, I want to urge the planting of trees along the highways and drives and around the premises. It is urged that trees planted along the roadsides prevent the drying of the roads in spring; that they are kept in bad condition by them. I do not think rows of trees along the roads will do these things to any great extent. But, suppose they do, that is not to be compared with the benefits of shade to disperse the intense heat and dust of the whole summer's travel. You all know what it is to drive to market in the boiling hot sun and stifling dust, and to rest the panting, sweating, dust-covered horse in the cool shade of a roadside tree.

Homes and premises embellished by tree planting is equally as urgent. Tree planting is a thing that has become necessary. To the ladies of the meeting I appeal for aid in this most generous movement, and to the gentlemen I plead for a decided active tree planting spirit.

"He who plants a tree
Plants hope, joy, peace and love,
Tents of coolness spreading out above;
Wayfarers he may not live to see,
But gifts that grow are best;
Hands that bless are blest.
Plant: life does the rest—
Heaven and earth help him—who plants a tree;
And his work its own reward shall be."

C. M. Hobbs, Bridgeport, Ind.—Two years ago this summer, at our meeting at Plainfield, I was asked to prepare a paper on the subject of "Shrubs." I went to some pains and prepared a careful paper, giving list of varieties and descriptions of them—those varieties of shrubs that are adapted to these latitudes. If you will refer to that report of 1900 you will not care to have me go into details today. I brought several varieties of shrubs with me and will exhibit them to you.

Mr. Hobbs here exhibited a large number of varieties of shrubs for home ornamentation, giving their names, seasons and habits of growth. For a detailed and exhaustive description of these see the report of this society for 1900, page 24.

FLOWERS AND SHRUBS.

BY MRS. W. W. AIKENS, FRANKLIN.

What a dreary world this would be if there were no green grass, no leaves, no buds, no flowers.

Did you ever think what a blessed color green is? How restful to the eye, and, after the gentle rain, how cheery one feels in viewing the verdant fields and leafy trees and how much revived and invigorated. The question has often come to me, do we appreciate and improve our talent for the beautiful things God has given us? In Genesis ii, 8-9, we read: "The Lord God planted a garden and out of the ground made the Lord God to grow every tree that is pleasant to the eye and that is good for food."

It seems to me that we have a responsibility in this matter; that we care for these things, and cultivate a love for them, and teach the children to care for them. Every school yard should be a little park with ornamental trees and shrubs. School Trustees should be insisted upon to carry out some suggestion in this direction. Every property owner has a

responsibility here. How often it has been seen where one neighbor whose love for shrub and flower has caused his neighbor to catch the same spirit for beauty until the whole street is a garden spot.

The planting of trees and shrubs is a means of increasing land values, a few dollars expended thus is a valuable investment. Our forefathers had but one idea, and that was to make everything count toward financial benefit; so only fruits having commercial value were planted. But in the last few years there have been immense strides made for planting ornamental trees and shrubs.

Large nursery firms give out that in the past ten years sales of ornamental stock has increased at least fifty per cent., showing education in the right direction. Very much is said of the benefactions of Mr. Rockefeller and Mr. Carnegie in bestowing their great wealth upon institutions of learning, yet Henry Shaw of St. Louis did a greater work than they when he founded the Botanical Gardens of Missouri. In this work, Mr. Shaw contemplated providing pleasure with incidental instruction to the public; training gardeners and botanists and contributing to botanical knowledge, and at his death left his millions as an endowment to the work he had mapped out. Could there be greater good in this direction?

It lays with ourselves to make our home the most blessed and happiest place in this world. Now, how can we do it? We must not think more of the almighty dollar than of the pleasures of the home circle. I think one of the greatest sources of happiness are the flowers. Martin Luther said that a flower in the window was strong enough to keep the devil outside, and we never understand this until we make friends of the flowers and see their power for good. Every flower is a preacher and a teacher. It preaches sermons of beauty and teaches the lesson of nature. It becomes a friend by whose friendship we are made better because it can never be anything else but pure and uplifting.

Let us banish the calf and all other intruders from the lawn and see what we can do for the front yard. Men are not always interested in a neat yard simply because they will have to cut the grass and there is no pay in it, and flowers and shrubbery will not look well in long grass, and to make a long story short, they make a cattle pen of the yard.

I want to say one word about planting. When you dig your hole for bush or tree, or whatever you expect to plant, make it so your plant will be down one inch deeper than it was before. Make the hole larger every way, and instead of setting the plant down in a bunch as if its feet were cramped, spread all the lower roots out carefully in the bottom of the hole on the soft ground, then put in some soil, then spread out the next layer of roots, and so on, that each root may be in as near the same place as before dug up. Then put in a bucket of water, fill hole with soil and pack firmly and I do not care what you set out it will live.

But let me tell you a back yard will grow shrubbery quite as well as a lawn and for more than one reason I prefer some there, for we busy

people are found in the back part of our homes more than in the front, and we can enjoy beauty there so much better. Another reason, one will be more apt to divide the flowers with some sick one or give to a neighbor who has none, for when they are in the front yard one does not feel so free to pluck and pick.

I have a spiraea van Houtti in my back yard that is now eight or ten years old and that measures about thirty feet in circumference. I paid fifteen cents for it and it bloomed the second year, and since that time has bloomed each year. Its beauty when in full bloom can not be described, with its long sprays of pure white flowers daintily set in delicate leaves and the sprays sometimes a yard long, so full it looks like an immense bush with a white sheet thrown over it. The sprays look like immense white plumes. I have cut almost a wagon load of bloom each year to give away and that is the only attention the bush has had. That is all the trimming it will need unless dead wood should be there.

Another magnificent bush is the Persian lilac that differs very much from the common lilac. It is of low, bushy growth, with a small, fine leaf and flower more delicate in color and texture. Flower blooms on long spray, sometimes almost a yard long, plume-like and exceedingly fragrant. Yet another lovely bush is the Standard or bush honeysuckle. It comes in several shades, but the pure white is most lovely. Dewtzia is another lovely white flowering bush. Hydrangia paniculata makes a beautiful addition, and, as this comes late, it is especially desirable. Blooms all during August, and nothing is finer or more showy. It is so hardy it may be easily grown in any soil. This plant makes a lovely hedge; or, when massed, are very showy. All shrubbery is more effective when grouped or massed on the lawn. Wiegels are also most worthy of cultivation. Flowers are very profuse and desirable for border. Spiraea Anthony Waterer should not fail to be in your collection. These are only a few shrubs of many beautiful ones, but these mentioned I have found very satisfactory.

Do not buy the high-priced new things you know nothing about, when there are so many of the low-priced ones that give such good satisfaction. One of my happy experiences in growing shrubbery is, I have never been bothered with any kind of insects. If you have a place for only two vines I would recommend wistaria and honeysuckle halleana.

I would by all means urge that the yard have a few shrubs here and there or in a group. It will give the home such an air of taste or refinement and beauty nothing else can.

ORNAMENTING THE HOME WITH SHRUBS.

BY MRS. R. A. NEWMAN, LAGRANGE.

Ladies and Gentlemen of Our State Horticultural Society—I greet you, and should like to have been able to meet with you at this time, but I will send my paper and hope you may get some good out of it. In planting shrubs to be ornamental, one must use considerable judgment as to the selections, and the place to plant them. A small yard does not look well crowded with a lot of shrubs and never pruned or trained. To ornament a small place I would have a japonica in a sheltered place as it is apt to freeze out, if much exposed, and at one side so as not to obstruct the view. I would have a French lilac and a syringa. I should like them to be near enough to the house to get the perfume wafted in on the breeze. They are both very fragrant. Then, near the porch, a dentzia and a spiraea and an Anthony Waterer, as that usually blooms all summer. Then I would like a crimson Rambler rose to climb up on the porch to shade it, or a honeysuckle, perhaps.

A large space of ground to be ornamented is a grand chance for one to indulge in shrubs to their heart's content. I do not like snowballs very well, as they are so clumsy one can never have a bouquet of them; still, they are nice in a large place, and as they grow quite high, they might do to plant as a screen somewhere. The French lilac is far superior to the others, as the branches are more willowy and the blooms are just as fine, and besides it does not sprout up like the others. It just grows in a clump like a currant bush, and I get quite good satisfaction by planting some shrubs in groups of about three different varieties. I have a group I like. It is a white cedar trimmed back to make it thick clear to the ground. By it is a rose that has bloomed all summer and it is at least seven feet high with deep rich pink flowers. By this is a rudbeckia full of double yellow blooms. The cedar is about nine feet, and a good back ground for the others. The rudbeckia is seven feet and bends and sways in the wind as it pleases. I could stake it up, but I like it best as it is, as it is more graceful looking.

A number of years ago I got some seeds of hibiscus. They came on fine and bloomed the second year. One was white with a red center, another pink and one red. They are well worth cultivating, as they bloom a long time. Their blooms are about as large as a china saucer. They grow about three feet high.

Now, if you want something nice, get a tamarix and plant in a sunny place, not too near the house, as it sometimes gets good size.

I have one that I got when I went to Kansas in 1890. They grow there as much as fifteen feet high.

They are so spray like that I wanted one to bring home; so, as I could not find a small one rooted, Cousin Fred Loy took his knife and cut off a branch near the ground and put it in a can of dirt. It grew, and by keeping it in the house till spring, was large enough to set in the ground. Before they leaf out in spring they are covered with pink flowers. As the flowers fade the slender leaves start and it grows all summer, which makes it fresh and green. Now, in grouping your shrubs, avoid planting them so they will not harmonize as to color. Be careful where you place any blue flower. Best put it by itself. It is like putting blue in a rag carpet—you don't know what to do with it.

Once when visiting a friend in Vandalia, Ill., I saw a board fence covered with large rosebushes. The lady I was visiting wanted to raise chickens, so they made a high fence by boarding up and down fully seven feet high. Along this fence she set rose bushes thick, of all kinds and colors, mostly climbing ones. They were all over the fence when I saw it, and very beautiful it was.

And, dear horticultural friends, while you are planting shrubs in the front and at the side of your grounds, plant some in the back yard so that the mother as she toils in her kitchen can look out and feast her eyes on them and perhaps spend a few moments with them resting her tired body and brain. Why not plant them in the back yard to make a screen for ash barrels and some such things that we must keep there? I think I will plant a large group and put my ash barrel in the middle out of sight. Let us try it.

THE USE OF FLOWERS IN ORNAMENTING THE HOME GROUNDS.

BY MRS. DON K. HITCHCOCK, BRIMFIELD.

When the world was finished God placed Adam and Eve in the Garden of Eden. Methinks that he intended our homes to be beautiful and ornamental. After the loss of Eden man had to make his own home.

History tells us of the grandeur of foreign countries, with their paintings and, in fact, of art of all kinds; also of plants, both rare and beautiful.

The homes, beautified by everything that can be found to add to their beauty, are the homes of nobility. Families who can trace their ancestry back for hundreds of years, who have had possession of one piece of

property for several generations, find the same line of gardening has been handed down from father to son, making an already beautiful garden and lawn more beautiful.

Our own Indiana has not yet been a member of the Union a hundred years, yet we find beauty and culture coming on with great rapidity.

Our forefathers had to come to this wilderness, fell the forests, ditch the land, drive the wells, make the roads, and make a living for their families. But little time or opportunity did these first settlers have to dwell upon the ornamental side of the question. But at that time nature's beauty was at its height.

We have now reached the age when we can adorn our homes, both inside and out. The express trains and rural mail delivery are bringing to our doors the seeds, cuttings and rooted plants, so we can begin to lay out ornamental grounds, providing the little wideawake pig and the old hen have a fence around them, one that will keep them in bounds.

If I was to lay out a home ground, I would have no trees or shrubbery to obstruct my view of the street, nor would I have anything of medium height between the house and driveway. On the opposite side of the front lawn from the driveway I would have some flowering shrubbery, and in the back yard or garden I would have my flowers. Unless I had plenty of help to pull weeds, cut grass and water plants, I would place most of my plants in pots for the house and porch and the remainder in a bed in the garden. For the front yard I like grass, trees for shade and some shrubbery at one side. I would like some of the shade trees to bloom. For this purpose I would choose the following: A linden or basswood, a catalpa, a poplar or tulip tree, a locust. One locust I would have grafted with the pink flowering locust. I would have my shrubs have several stalks or in clumps. For shrubbery I like the purple and white lilac, the sweet-scented syringa, bridal wreath, a trumpet vine. Cut this vine back until at the base of the stalk it is as thick as your wrist; let it grow in height about seven or eight feet. Some elderberry bushes, not only for the sweet flowers, but a few pies as well. Were I fortunate enough to know the right variety, I would have the hardy hydrangea. For blooming vines I think the crimson rambler, the Queen of the Prairie and the Seven Sisters are most beautiful and hardy with us. Next to these three roses comes the purple wistaria. I would like the clematis very much, both purple and white, if I could have success growing them.

I think it best to place a good share of one's time and money in getting started a number of perennial plants. First, if these are neglected from sickness or some other cause, and if a drought or wet weather affects them, the next year there will be some chance of redemption, by a little extra work and fertilizing all is well. I like the columbine, bleeding heart, blanket flower, iris, the lily of the valley, oriental poppy, giant daisy, the yucca or Adam's needle, spiraea, golden glow, and the perennial pea. I find the white and red varieties quite hardy.

For a flowering bulb I like the crocus; it is both cheap and satisfactory. If a hundred or more of these bulbs are stuck in the front lawn, almost before the snow has gone the little blossoms begin to peep out, and soon the lawn is beautiful. The hyacinth is all right to pot in the fall, and after it is through blooming in the spring, set it out in the open ground. In this way it will bloom again the next year.

We have had both double and single dark blue violets and single white violets, but the single ones have mixed until now they are light blue.

If one should wish a flower hedge, screen or background, what would be more beautiful or answer the purpose better than a cluster of hollyhocks, sunflowers or morning glories?

I think a garden would not be complete without the gladiola. I have no trouble keeping the bulbs. I dry them, put them in cloth bags, then place them in a drawer in the dining-room. I have not had success with the hardy azalea, but now have one that I am keeping in a pot; hope to be able to have flowers next spring.

Among the annuals, the aster comes first for beauty and hardiness. If once you get the bachelor button in the garden, it will do the rest. Next, the poppy. Poppies are everywhere present in my garden. They, with some asparagus limbs, make fine bouquets.

The early and late flowering cosmo should be in every garden; we have had them in bloom from July 4th until snow came. The mignonette is not so pretty, but is so fragrant when in the bouquet.

The nasturtium must be grown to be appreciated. I like the dwarf best.

What is prettier than the sweet pea? That is, if you can head off the ground mole. This has been a good year for the pea—so much rain. The peas must be picked every other day. The beautiful faces of the pansy will make any one who loves the beautiful rave, but any one with a weak back also raves at picking time.

The petunia, for either indoor or out, has no equal. The only trouble I have with petunias is that those indoors get a rust on the leaf.

When once started, a bed of mixed colors of scabiosa is very useful and pretty. The salvia is very pretty outdoors, and also useful in pots.

For garden bed or massing, the verbena bed of mixed colors is unrivaled. The most beautiful bed I ever saw was a round bed—a rose geranium in the center, with scarlet geraniums around it; surrounding this, and making up the rest of the bed, was scarlet verbenas. I have wished for a bed like it, but haven't it yet.

The zimmia and sweet william make a nice, coarse bouquet. A lady at the June meeting of the Lagrange Horticultural Society showed about thirty colorings and markings. The marigold makes a very effective display, with its various sizes and colors.

A collection of coleus is very valuable to aid in cuttings for a bouquet, whether it be out in a bed or in a pot.

The geranium may be treated as an open ground plant in summer and placed in the cellar in winter, or it may be kept in pots the year around.

I have not yet mentioned the rose. As a pot plant I find it an entire failure, this being caused by the spider. Out of doors we have quite good success. Any hardy or ever-blooming rose is very pretty.

I would have chrysanthemums by the dozen, could I have the success some of my neighbors have.

My best success with the least labor is with the pot plants. Of these I have over 100 pots. The ones that I think the amateur would have the best success with would be the following: Begonia, fancy-leaved geranium, coleus, wandering jew, sultana, iva geranium, umbrella plant, yellow jasmine, cactus, marguerite, white and red oxalis, Lady Washington geranium, ferns, primroses. If you have plenty of sunlight, flowering geraniums also. A great amount of sunlight is needed for petunias.

I am now trying to get some pot plants that will be useful. I have the Japan fig, both the American Wonder and ponderosa lemon and a pot grape. I do not think many of our homes are of the right temperature to grow palms.

Indeed, we ought to make an effort to make our homes beautiful, for, as Payne has said, "There is no place like home."

FLOWERS.

BY MRS. J. B. BURRIS, CLOVERDALE.

"Flowers—the sole luxury that Nature knew,
In Eden's pure and guiltless garden."

The love of flowers comes down to us through the centuries. "I am the rose of Sharon and the lily of the valleys," sang Solomon in ages past, a beautiful Oriental figure of speech, indicating the high esteem in which flowers were then held.

The Greek nation was the first to ennoble flowers. In that time, that clime, "Where burning Sappho lived and sung," the poet, the athlete and the patriot were all rewarded with wreaths of flowers. Even ambitious Rome held a flower crown as fit reward for the mightiest service. It was there that the festival in honor of Flora was institute as early as 736 years before the birth of Christ, in the reign of Romulus. The love of flowers is inherent in the Anglo-Saxons as well as the Romans, and from them we come by our love of flowers rightfully.

Few of us can have conservatories for our winter plants, or can do anything so extensive out of doors as to be termed landscape gardening, but we may all, with a little time and care, greatly enhance the beauty of our homes, both indoors and out, by the addition of plants and flowers. No home, however lowly, but is improved by their use. They are always an index of refinement wherever found, and one can not but feel respect for those who planted them.

Do not place all the flowers in the front yard, to be seen by the public eye, and leave the back yard for a dumping ground for tin cans, potato peelings and old shoes, but make it the principal part of the flower garden, where the housewife may enjoy the flowers as she passes to and fro about her work. 'Twill also be more convenient to the water, and they will most likely receive better care.

At the base of any forest or shade trees, wherever found about the premises, plant some vine, as woodbine, wild sarsaparilla, Virginia creeper or wild honeysuckle.

There has been a rage, the past few years, for the old-fashioned flowers of our grandmothers, and as many of these are perennials, they recommend themselves to those of us who like the flowers to come year after year with little work. For this have a permanent bed where may be planted poppies, phlox, petunias, verbenas, dianthus pinks, etc. There is such a multitude of varieties one is puzzled to know which to select when space is limited.

Of the annuals, the three favorite varieties are pansies, sweet peas and nasturtiums. The pansies and sweet peas require a very rich soil and plenty of moisture, while nasturtiums thrive in most any clay soil, and will yield a profusion of flowers for cutting until frost. The tall varieties do best and are desirable for covering unsightly walls and fences. Add to this collection a bed of coleus, of geraniums, of tea roses and a large bed of foliage plants, forming a pyramid of gladiolas, cannas and caladiums.

For autumn blooming the aster is a favorite, and as they bloom late, some poetic writer compares them to "an afterthought of Flora's, who smiles at leaving us." Chrysanthemums are also very satisfactory. They do best and are least trouble placed in the open ground in summer. Keep pinched back until the last of July. In September lift them ready to remove to the house when frost comes. Some prefer not lifting them, but the frost soon catches them if left out, while if taken indoors we can have some of the later blooming varieties until near Christmas. They take so little care, except at blooming season, that no lover of flowers can afford to be without at least a small collection of chrysanthemums. This year my collection numbers about thirty varieties.

As to plants for window culture, the selection varies according to sunlight in the rooms where they are to be kept. If there is little sunlight, begonias, umbrella plant, palms and ferns are most satisfactory.

Umbrella plants require a great deal of water; palms but little, unless in active growth. Both need frequent shower baths to keep the leaves from turning brown. Washing palms in milky water not only helps to keep the leaves healthy, but improves the appearance as well. Two of the most popular ferns are the asparagus plumosus nanus, or Japanese lace fern, and asparagus sprengerii, or emerald feather fern. The latter makes a nice basket plant.

For sunny windows, geraniums, started in August, will give a profusion of bloom. Coleus will do well and give color to your collection. Impatiens saltanas, both red and pink will furnish a wealth of bright flowers all winter if given plenty of water and good sunlight. Carnations, abutilons and some varieties of double petunias will do nicely indoors. The secret of success with the geranium and coleus especially lies in not allowing them to become chilled. This will blast the geranium bud and cause the coleus to drop the leaves. A calla lily is one of the choice plants for window gardening. A large, thrifty plant is almost as stately as a palm, and when it blooms it is the admiration of every one. Last winter 'twas my good fortune to have five beautiful blooms. Give the plant a rich soil, and during the winter give daily applications of hot water, by setting the pot in the hot water and allowing it to absorb. In summer they must have a period of rest.

No definite rules can be given in floriculture, because there are varieties in tastes, likes and dislikes; hence, success or failure is largely an individual one. Where one succeeds, another fails. If there is no love for plants, don't attempt to grow flowers. As success in farming depends more on the man than the soil he cultivates, so plant growing affords the greatest satisfaction to those who appreciate them most.

In this paper only those plants and flowers with which I am familiar have been mentioned. There are doubtless many other varieties equally as satisfactory, and it is to be hoped that by exchange of ideas in this meeting we may be benefited by learning better methods of culture, as well as new varieties to cultivate.

The Divine Creator has placed the flowers here for us to enjoy and to gratify an inherent desire for the aesthetic in nature. We can not be too thankful for the refining and blessed influence they wield in the human heart.

"God might have made the earth bring forth
Enough for great and small,
The oak tree and the cedar tree
Without a flower at all."

OUTBUILDINGS FOR THE ORNAMENTAL HOME.

BY H. H. SWAIM, SOUTH BEND.

We have an artistic house, with a beautiful lawn, the grounds ornamented with flowers and shrubbery and a few magnificent trees. And now must we spoil the picture by putting in the outbuildings which are deemed necessary to every rural home? The domestic animals and fowls must certainly be provided with shelter convenient to the house, but I fear it will not add to the beauty of the surroundings. It will not be necessary to spoil the lawn, however, as the proper location is in the rear of the house, and for sanitary reasons they should be on a slightly lower level than the dwelling, and, wherever possible, on the side opposite the prevailing summer winds. Make the buildings as few in number as the conditions will allow, and the style of architecture should harmonize with that of the dwelling. Then, when all is complete, plant a hedge of arbor vitae or other evergreen between them and the dwelling house, so as to isolate them as much as possible, and you have done much to improve what, on most farms, is a very unornamental part of the surroundings.

WALKS AND DRIVES.

BY S. JOHNSON, IRVINGTON.

Meeting a friend on last Friday, I said: "Mr. K., the secretary of the State Horticultural Society has got me into trouble, and I want you to help me out. He has assigned the subject of 'Walks' for me to write and read a paper on at this meeting, and although I have spent many a hard day's work in an endeavor to keep walks in decent order, yet I know but little about them. What shall I say?" Said he: "Just say, 'gravel walks are the best.'" This gave me a text. Being by nature combative, I said: "I will do no such thing, for I do not believe in gravel walks." I have nearly worn my life away in trying to keep gravel walks clean, and I shall not advise others to follow in my footsteps. Following up my desire for information, I called on Mr. Powers, superintendent of parks in our city, and laid before him my trouble. He at once handed me his printed report to the Board of Works, and pointed out to me the following, which so exactly coincides with my views that I reproduce it, to wit: "No gravel path will afford good walking when heavy rains oc-

cur, or when the frost is coming out of the ground. Placing more gravel upon it is mere foolishness. If small towns or the owners of country homes will get this into their minds, and instead of a fruitless struggle against the laws of nature and gravel, will build sidewalks or pathways of stone screenings, with a good foundation underneath, they will save themselves much expense, labor, muddy feet, discontent, profanity and ill feeling. This is about all there is to do to screening walks, except rolling, of which too much can not be done."

Mr. Powers might, with propriety, have added that grass or weeds will not grow in walks made in this way, thus avoiding much hard labor and expense in an effort to eradicate weeds and grass.

The excavation for a walk should be about four inches in depth. This should be filled with the screenings, a little rounded up in the middle. The cost of a walk thus constructed is about four cents per square foot.

In regard to the plan: If the walk is a short one, I would have it straight. If of considerable length, I would have a gentle curve or curves, so that it might appear that there is a necessity for such a curve to avoid a tree or shrub on the concave side of it.

ORNAMENTING THE HOME - CARE AND KEEPING OF YARD AND LAWN.

BY LIZZIE C. ROYER.

There seems to be manifested a wider movement for public beauty, and the promotion of this outdoor art ought and should interest every man, woman and child.

If we would have beautiful yards and lawns, we must learn that outdoor art means not only a knowledge of landscape gardening, but a knowledge of two other great arts, namely, architecture and sculpture, and the beauty resulting when these three are brought to bear one with the other. It must be remembered the beautifying of the home grounds is not the work of a season or year, but a slow process. Yet if we take pleasure in it, and have some taste, it will be a delight and pleasure from year to year to see new beauties unfold as the rose. You have, perhaps, experienced the pleasure of watching a tree, plant or vine develop that you have planted with your own hands. It is the same with the care of the yard or lawn. We work along day after day, but each day brings something new to care for; but there is a charm in the work that is impossible to describe. It is a good plan to have no definite rules to govern us, as conditions always differ, but a few suggestions along this line may be welcomed by the amateur.

It is advisable to have your schemes well thought out before beginning work, or you are apt to be disappointed, as success depends on simple schemes until the time comes when you feel entire confidence in your ability to do more elaborate work. "A real love of nature is one of the most valuable possessions which you can have, since it will continue to afford you happiness as long as you live."

The fashion of long walks bordered with the old sweet flowers of our grandmothers has vanished, and in its place the green velvet lawn, which should be clipped closely to be pleasing to the eye. The walks should be kept free of weeds, and the flower beds along the division lines that border the house and side fences, if any, should be planted so as to secure a harmonious blaze of color all summer. The flowers should not be planted in a wild fashion, but to secure pleasing results. For the background plant the taller plants, and in front of these smaller ones, and so one down. Bulbs make a beautiful display, and with a little care we may plant these, so we will have flowers from snow to snow. If the lawn is large enough, there should be some shrubbery, kept well preserved.

Every home should be made attractive by wide verandas, with vines and rambling roses all about them. These must be trained with an idea of beautifying the home and lawn. It is not necessary to expend a large sum of money for these, as we can use native vines and shrubs. These make a beautiful yard. Let the idea of comfort prevail in all you do. Put a rustic seat here and there, a swing or hammock, chair and a hammock, so that your lawn has an air that seems to invite you to a place of rest and comfort. Do not have it so fine you will have to put up the dreaded park sign, "Keep off the grass." This subject takes in the back yard problem, which Mrs. Stevens so ably told us about a year or two ago, but which will bear airing many times. How many times do we see the front and side yards well kept, while the back is strewn with all manner of rubbish. They should be cleared, seeded to grass or filled with vines, flowers, plants and shrubbery, with here and there a rustic seat for the weary people to recreate upon, when they do not feel presentable to appear on the front lawn. The lawn should be provided with ample shade. Cover old fences, buildings, etc., with vines such as morning glories, sweet peas, wild cucumber, gourds, scarlet beans, woodbine or anything to suit your fancy, and they will be converted into things of beauty. It is a wise saying, "To grow a few good flowers, and to grow them well is vastly more satisfactory than to try and grow everything."

The weeds must be kept down to have beautiful flowers and grass. Therefore, dig among your beds daily and make it an infallible rule to pull up every weed when you see it. Before planting, see that your lawn is thoroughly cleaned. If you do not know what to do with the rubbish, bury it. There is much consolation in the thought "that a wave of beauty is about to strike the American shore." This wave will carry away all

the tumble down fences, all the tin cans and heaps of garbage, all the untidy, unpainted and too often unnecessary old out buildings, and will leave the ground free for grass, flowers and sunshine.

CARE AND KEEPING THE HOME GROUNDS.

BY MRS. FLORENCE ROSS, SOUTHPORT.

Before we consider this subject of the care and keeping of the lawn, we will infer that we have a smooth, well-graded lawn, thickly set with bluegrass, for which to care. It is far easier to make this inference than to make the lawn. A beautiful lawn requires much intelligent work in its beginning. There must be a perfectly smooth surface, which will admit of the use of the lawnmower. This surface must be fine and mellow and well fertilized in order that the grass seed, which should be strewn with a liberal hand, may find the best conditions for their growth. An abundant water supply is very essential during the first years of a lawn's development in our uncertain climate.

This present year is the only one within my observation when grass entered August looking fresh and springlike without an artificial water supply. Inferring, as I said, that we have a lawn free from weeds and thickly set with grass, we must not expect too great results from our labor during the first year or two.

England is noted for her wonderfully green, velvety lawns. A millionaire from this country approached the head gardener in charge at one of the beautiful manors, hoping to get the secret of his success.

"I'll give you this," he said, shoving a twenty-dollar bill into the old man's hand, "if you'll tell me how you manage this year."

"There's no secret at all about it, sir," the old man replied. "You just grows it, and you rolls it and gives it plenty of water."

"But I do that at home, and my grass doesn't approach this for beauty."

"You just keep that treatment up for one hundred years," the gardener replied, "and you'll have grass like mine."

Here, where it is every man's ambition to build a new home in a new location, we can not aspire to the perfection of the lawn which has had a hundred years of attention. The grass should be rolled as soon as the ground is in condition in the spring. The lawnmower, with its sack attached to catch the clippings, should be run once every week unless the weather is very hot and dry and you have no means of supplying water.

In order to make the work with the mower a pleasant task, the lawn should not be broken by numbers of flower beds and clumps of shrub-

bery, but these should be grouped around the sides, leaving the clear, open green for the center. A small, sharp sickle is necessary to get the grass around the trees, flowers and the house. A close watch must be kept for the encroachment of weeds which threaten the beauty of the lawn. The dandelion-starred grass is a thing of beauty in early spring, but very ragged looking all the rest of the year, so dig the dandelion out with a strong, narrow bladed knife at its first appearance, and give the same treatment to the plantain and buckthorn. Eternal digging is the price of beauty in your lawn. The grass should not be raked down with a sharp-toothed rake. The autumn leaves, against which so vigorous a fight is kept up, provide a useful mulch and fertilizer when left until spring.

If the soil is not sufficiently rich in humus, the grass should be given a light covering of well-rotted stable manure in the fall. Otherwise, a commercial fertilizer is best, as it contains no weed seeds. A dusting of slacked lime in the spring is a stimulus to growth.

The lawn should be put in order after the first killing frost. All dead flowers should be removed and burned, and delicate vines and shrubbery should be carefully wrapped at the first hard freeze. The desolation of winter should not be emphasized by forlorn, unkempt flower beds and shrubbery.

DISCUSSION.

S. Johnson: There is one feature about the lawn we have not touched upon, and that is the mole. After digging up our lawn we can not get rid of them.

President Stevens: Mole traps are the best thing.

A Member: One of my neighbors had a very fine lawn. Dandelions sprang up in it. Last spring he took his knife and dug up the dandelions. He then took his coal oil can and dropped a few drops in the center of the dandelion plant. He got rid of the dandelions.

A Member: While I answer Johnson's question about the moles, I would tell him to get five cents' worth of strychnine. Then boil some corn until it is soft, split the grain of corn one-half way through, drop the strychnine in, press the corn together and drop in mole hole. Sure cure.

H. W. Henry: I think, in this lawn discussion, one of the most important things that makes a lawn beautiful has not been touched upon, and that is the rose bush. There is no one thing in the lawn so beautiful as the rose bush, if they are properly kept up. Two years ago I thought my lawn was too large to run the lawnmower over. I plowed a strip twelve feet wide and forty feet long and planted a rose bed of all the different varieties, but I found I got myself into more work than I would

have had by using the lawnmower, because it took more work to keep those roses in proper trim and proper blooming condition than it did to mow the yard, but the pay has been a great deal more pleasant, because they are the most beautiful part of the yard. They keep blooming from early spring until it freezes up in the fall. People going along the road admire them; they speak about your beautiful yard; it's always your beautiful rose bushes. It is some trouble to take care of them, but they pay in their attractiveness.

Mr. Sandifer: I came out here to learn something that I have not learned yet. If it has not been taken up I would like to ask a few questions about spraying, as I have quite an orchard of twelve acres of apples and pears that I planted in 1873. I took a great deal of pains setting them out. I dug the holes two feet square and two feet deep, set my trees the proper depth in the ground. I set out about twelve acres of fruit; never lost but one tree from planting. I took a great deal of care of those trees—every spring washed them down with the settlings of soap, rubbing them. While I had the finest orchard in the country, that bad winter that killed our orchards killed one-third of my trees. Other orchards in the neighborhood killed all out. The balance of mine did not do so well afterwards. The canker worm got into them. The neighbors told me to spray. I bought a barrel sprayer and sprayed them three times. The worms ate them up again. I should like to find out what to use in spraying.

Mr. Kingsbury: Use Paris-green, full strength. When did you spray?

Mr. Flick: How much did you use? What proportion to the barrel? Was your Paris-green pure?

Mr. Sandifer: I could not say. I got it from the man I bought the sprayer from.

A Member: Did you spray before a hard rain?

Mr. Sandifer: Think not.

W. B. Flick: It is a fact that it requires more Paris-green to kill the canker worm than most any other insect. Mr. Hobbs has used four times the strength on the canker worm that it requires to destroy other worms. We must get at them a little sooner than when the bloom falls, and if we place poison where they can get it when young, they are easier killed. I have sprayed for them just as soon as the buds show green on the apple, before the bloom is out. That will catch the young ones, and they are easier killed. While I made the Paris-green stronger, I would add, in proportion, lime,

Joe A. Burton: I think that Mr. Sandifer did not spray just at the right time for the canker worm. I think Mr. Flick does. I think the best time to spray for that worm is just after the little leaves open; then you have something to put the Paris-green on. The insects will then eat the Paris-green and die. If you spray just when the buds are swelling, you don't put your Paris-green on anything that the worm is going to eat. If you wait till the little leaves are out, you have something to put it on. We have quit spraying just at the time the buds swell. We wait later, and we hit the proper time for the worm.

C. M. Hobbs: A pound of Paris-green to fifty gallons of water for the canker worm. You want to use these very strong proportions in order to kill them. Use it early if you want to kill them.

Joe A. Burton: We have had a great deal of talk about apples, especially, and this matter of spraying seems to be a paramount issue with us for some time to come, and especially in our next meeting, and I move, Mr. President, that the secretary be instructed, in preparing his next program, to devote one session entirely to spraying.

President Stevens: We will now hear the report of the Committee on Awards.

W. C. Reed: There were fifty-two entries in apples, thirty-seven in pears, sixteen in plums and ten in grapes.

J. Y. Demaree, Morgantown, Ind.—First on Transcendent crab and Damson plums; second on Bartlett pears and Robinson plums.

Walter S. Ratliff, Richmond, Ind.—First on display of apples, Wealthy, Benoni; display of pears, Tyson, Doyenne, Summer pear and Wild Goose plum; second on largest and most beautiful apple.

H. J. Hale, Indianapolis, Ind.—First on Early Harvest apples, Red Stripe, Chenango, Maiden Blush, Red Astrachan, Wilder pear, Howell; second on Red Stripe apple.

Professor James Troop, Lafayette, Ind.—Second on display of apples.

Riley C. Case, Lagrange, Ind.—First on Golden Sweet, Sweet Bough, Yellow Transparent; second on Duchess of Oldenburg and Benoni.

C. P. Bradley, South Bend, Ind.—First on Duchess of Oldenburg, Whitney crab and largest and most beautiful apple; second on Yellow Transparent.

H. M. Stout, Trafalgar, Ind.—First and second on Clapp's Favorite pear; first and second on Moore's Early grapes; second on Wealthy and Transparent apples.

J. C. Grossman, Wolcottville, Ind.—First on Wickson plums; second on Red Astrachan apples, Flemish Beauty pears, Abundance and Burbank plums.

H. H. Swaim, South Bend, Ind.—Second on Chenango apples and Tyson pears.

W. B. Flick, Lawrence, Ind.—First on Flemish Beauty pears and Robinson plums; second on Maiden Blush apples.

Mrs. B. A. Davis, Laporte, Ind.—First on Abundance, Bradshaw, Burbank and Lincoln plums; second on Gold plums.

Evan Swift, Franklin, Ind.—First on Bartlett pears and Lombard plum; second on display of pears.

W. H. Fry: Greenwood, Ind.—First on display of early grapes.

S. Johnson, Irvington, Ind.—First on Brighton grapes.

The display of fruit is very fine. Finest I have seen for several years. Apples, pears and plums are large and smooth. Purdue University Experiment Station shows several Russian and the newer apples of large size and handsome appearance.

Mrs. E. J. Howland: Our committee makes the following awards on flowers:

Display of Flowers—Mrs. W. W. Aiken, Franklin, Ind., first premium; Mrs. W. B. Flick, Lawrence, Ind., second premium.

Round Bouquet—Mrs. J. H. Hale, Indianapolis, Ind., first premium; Mrs. W. W. Aiken, Franklin, Ind., second premium.

Flat Bouquet—Mrs. W. B. Flick, Lawrence, Ind., first premium; Mrs. W. W. Aiken, Franklin, Ind., second premium.

A very fine collection of gladious, grown by E. Y. Teas, Centerville, is recommended for a first premium.

MEETING
OF THE
STATE BOARD OF HORTICULTURE
AT
FRANKLIN, JOHNSON COUNTY, INDIANA,
AUGUST 13, 1902.

The State Board of Horticulture met at the noon hour in the city, and at the time above mentioned.

Present—W. W. Stevens, President; Sylvester Johnson, Treasurer; W. B. Flick, Secretary, and E. B. Davis, E. M. C. Hobbs, W. C. Reed, J. C. Grossman, Vice-Presidents, and Professor James Troop, H. H. Swaim and Joe A. Burton, members of the Executive Committee.

The Secretary laid before the board the particulars concerning the loss of the package containing the manuscript for the annual report for 1901, as follows:

The package was left in the care of a hardware store at Lafayette by Professor James Troop, with instructions to telephone the American Express Company to call for it, which was done. The express agent at that city forwarded the package to Indianapolis, Ind., to my address. I called each day or two at the express office in Indianapolis, but heard no tidings of it. I then addressed the agent of the express company at Lafayette, asking if there was any likelihood of the package being found. He replied that the package was lost, and that I had better take steps to reproduce the same, which was done. In due time I filed claims for \$400 damages. After the adjuster had examined the matter, he advised me that they would allow a damage of fifty dollars to the Society, claiming that, inasmuch as there was no value set on the package by the sender, we could not collect any more. On motion, the Secretary was ordered to accept the fifty dollars and release the company.

On motion, the Secretary was allowed a salary of \$250 per annum, and Joe A. Burton, Superintendent of the Experiment Orchard, a yearly salary of \$200, both to be paid quarterly.

On motion, the Secretary was authorized to continue the crop reports during the season.

^a The following bills were filed and allowed, and an order drawn on the treasury for the same:

W. W. Stevens, for expenses attend board meeting.....	\$8 80
E. M. C. Hobbs, for expenses attend board meeting....	8 80
E. B. Davis, for expenses attend board meeting.....	3 50
H. H. Swaim, for expenses attend board meeting.....	8 30
James Troop, for expenses attend board meeting.....	7 00
Jos. A. Burton, for expenses attend board meeting.....	4 65
W. C. Reed, for expenses attend board meeting.....	8 00
J. C. Grossman, for expenses attend board meeting.....	11 30
S. Johnson, for expenses attend board meeting at Orleans, Franklin and South Bend.....	12 26
Edith Marone, stenographer.....	20 00
E. Y. Teas, entry clerk and expenses.....	7 75
S. Johnson, Treasurer, for premiums paid to exhibitors..	35 00

Adjourned sine die.

W. W. STEVENS, President.

W. B. FLICK, Secretary.

REPORT
OF THE
FORTY-SEVENTH ANNUAL MEETING
OF THE
Indiana Horticultural Society.

The meetings of the Society were held in Room 12, State House, Indianapolis, Ind., December 3-4, 1902.

The first session was called to order at 2 p. m., Wednesday, December 3, 1902, by W. W. Stevens, President.

INVOCATION.

Rev. A. W. Shoemaker, Daleville: Our Father who art in Heaven, we come into Thy presence this afternoon, realizing that Thou art a rewarder of those who diligently labor. We come at the beginning of this session to invoke Thy blessing, realizing that whatever we have done, whatever we have accomplished, whatever we may hope for in time to come, we owe to Thy blessing. Grant that we may have a realizing sense more and more of what we owe to Thee, the giver of all blessings, in whom we live and move and have our being. We ask Thy blessing upon the proceedings of this meeting. Grant that we may, as we come to the study of nature and nature's methods, come nearer to Thee; that we may have a realizing sense that as we progress in the study of nature we come nearer to nature's God. Grant that the membership of this Society may increase and be an increasing power for good in this State. Guide us and bless us for Thy name's honor and glory, and finally accept us into Thy presence. We ask it in Thy name. Amen.

Secretary Flick: I shall hand cards to the members which I should like to have them fill out, giving names, address, the time you joined the Society, etc.

Mr. Howland: I notice that the slips request us to state the date when we joined the Society. I can not remember, and perhaps a number of the members can not remember when they joined. Would it not be better to consult the lists for this information?

President Stevens: You might retain the slips until you can secure this information.

First Vice-President Davis was called to the chair while the President read his annual address.

. PRESIDENT'S ANNUAL ADDRESS.

HON. W. W. STEVENS, SALEM.

To the Members of the State Horticultural Society:

Once more we have come together in annual session for the purpose of deliberation and consultation as to the wants, prospects and conditions of the horticultural interests throughout the State.

It is always pleasant for persons having a common object and mutual interest in view to meet together at regular intervals, exchange social salutations and consult with regard to the best methods of promoting that common object and interest.

As we look about us we find that those who are engaged in professional or industrial pursuits of various kinds have their associations and organizations for mutual advancement, and in view of this fact it behooves us to unite in some sort of combined effort to advance the horticultural interests of the State, when so much of the health, wealth and happiness of the commonwealth is dependent upon this industry.

Association is the origin and impulse of all progress. The elements of every department of society have their expansion and maturity under the vital power of this great principle. When its object is to benefit mankind in general, it is to be commended. While no injury could or would result to any other class of individuals by the upbuilding of our horticultural interests, the organization should be encouraged and advanced in every way possible.

We need not only a stronger and more efficient State organization, but county and local societies should be encouraged wherever horticulture can be made profitable. It is to be regretted that there isn't at least one good local organization in every county in the State, with a representative at our annual meetings.

These local societies do much to promote horticultural interests in their respective localities, and it should be the constant aim of the State Society to extend this work. The good that might be accomplished in this direction is inestimable.

The industry needs encouragement in every way possible, if we are to keep abreast with the times. The possibilities of horticulture in this great State are limitless.

The fruit industry of the country never held out a more inviting prospect to the up-to-date horticulturist than at the present time. The people not only need an abundance of good fruit, but are clamoring for it. And they are going to have it—more and more, and better and better, as the years go by and wealth increases.

The farmer and average fruit grower is not going to contribute much toward supplying the demand. In fact, they are not producing enough for home consumption. They can not resist the temptation to plant out orchards agreeable to old customs, but this is usually as far as the enterprise is carried on successfully. They will not supply themselves with necessary outfits to fight insect pests or ward off disease.

On the great majority of farms, where the fruit crop is of secondary importance, there is no time to look after the orchard when the busy season comes on. Unless fruit is one of the money crops on the farm, it is sure to be neglected, and any sort of neglect means failure.

People are also finding out that fruit can not be grown successfully or profitably in all localities or upon all kinds of soil—that in some parts of the country the industry may be carried on profitably, while in others it won't pay to plant out even a family orchard.

So, in view of all these facts, there is much to encourage the scientific horticulturist who is properly located and intends to conduct his business according to the most approved methods.

In a number of instances we have seen the fact demonstrated the past season that it pays to give the orchard proper care and attention. This includes, in every instance, scientific sprayings. We must have a healthy, vigorous foliage of tree and shrub to secure a sure and satisfactory crop of fruit the following season, and then there must follow an energetic war against insect pests that would dwarf, injure or destroy the fruit.

At this forty-seventh milestone of our organized effort along horticultural lines, a new leaf should be turned and more attention given to the market end of the business. There is no doubt but that this is half the problem of success in fruit growing. This being the case, the apple growers of our State, and this Society more particularly, may well direct some of their efforts to the market side of our fruit industry.

To make it desirable for any one to embark in the business of fruit growing, a profitable disposition of the crop must be in sight. This we have not had, and will not have until there is some sort of organized effort on the part of all who are engaged in the fruit industry.

The California fruit growers were driven to the wall till they organized facilities for connecting the products of their orchards with the markets of the East. Growers in the great Erie grape belt could never calculate upon any kind of sure profit until they organized and systematized the marketing of their products. Delaware peach growers found their profits all in the coffers of the commission men until they rose to the necessity of organizing a different system of selling. The small fruit growers of southern Illinois never succeeded in doing a satisfactory or profitable business until they had completed a regular system of handling their products so as to reach the consumer in the most direct way. The fruit growers of Indiana are at sea without a rudder. As the business is now conducted, it is one great hustle of the shippers to get all the fruit possible afloat ahead of "the other fellow," without regard to conditions of the market or future demands. Certainly, it is quite time that attention was given to the market side of Indiana fruit growing.

One lesson we have learned the past year is that there is little to fear from the periodical visits of the so-called locust. Very few orchards were planted out the past season, for fear that the trees might be destroyed by this pest. But they failed to put in an appearance in anything like the old time numbers, and did very little damage to fruit trees. They are never likely to visit us in sufficient force to do much damage again.

There should be some step taken at this meeting to secure a creditable display of horticultural products from different parts of the State for the St. Louis Exposition next year. I believe that it is possible for Indiana to make a better show than any other State in the Union, and by so doing we would not only feel greatly honored, but would advance our material interests as well. I believe the State would assist us in this work if it was properly presented to the next Legislature.

It is also thought by many persons that we need a uniform fruit package law in this State. These matters are to be discussed at this meeting, and we should decide what is best to be done and then go to work energetically to do it. In all of our discussions we want to keep on the broad gauge, and not give too much time to special interests which affect chiefly the business of some particular members of this Society, but to those things relating to the public welfare. Too frequently we come together with our problems of culture, insect pests, mildews and blights, and the entire time of the meeting is devoted to the finding of satisfactory answers to these vexing questions, while the influences which make for beauty and the advancement and refinement of the home are neglected.

Let us strive for an extension of all horticultural influences, for more local societies, for more horticultural problems in the press, for more transplanting and village improvement associations, for the teaching of horticulture in our schools, for there is no doubt but what the great

horticultural movement of this age is doing far more for the higher civilization than all the other business industries in the land.

Let us, then, labor generally toward that millennial day when every cottage shall shine with some of the beauty, and every laborer's table carry some of the fruits of our art.

Nearly all of us favor the teaching of the elementary principles of agriculture and horticulture in our public schools. We can not begin too early in life to train the children in the art of fruit and flower culture, and start them on the way to carve out for themselves the model home of the future.

If we can not succeed in having these things taught in the common schools, we should have in each county of the State at least one agricultural and horticultural high school, where a fairly good education along these lines might be obtained by those who expect to be tillers of the soil, but who can not afford to go to any of the colleges of the country to get it.

We have our grade and high schools all over the land, leading up to the college and the university, but there is no instruction, no special training, leading up to the agricultural and horticultural college for the fifty per cent. of the rising generation who are to live on farms in the years to come.

It is cheaper to take the school to the masses than it is the masses to the schools. And the school does much more good when in reach of those who are to be benefited therefrom. It was upon this principle that the Great Master desired His teachings to be promulgated when He said: "Go ye into all the world and teach," instead of saying, "Stand ye here and let the select few come and learn."

The subject of forestry is one in which all are interested. Many of us were born in a noble woodland that has been destroyed. Those who destroyed it gained little, but we and those who are to follow us will be the sufferers.

There is nothing better established in physical science than that a good proportion of forest is necessary to maintain equability of climate. We are told by scientific men that at least one-fifth of the land should be in forest to secure the greatest aggregate of field and fruit crops. **In** many parts of our country we have passed the limit of safety in timber waste, but the work of woodland destruction goes on with remorseless energy. And still very little has been done to stop the waste or to promote forest culture. The governments of other countries show much more wisdom than we. They live in the immediate presence of the ruin and national decay that have come to once fertile and populous lands.

Some one has said that the institutions of civilization have never declined in a country that has maintained its forests, nor have they been long perpetuated in any country that has wasted its woodland heritage without repair.

In view of this fact, how important it is that the State should take prompt action for the upbuilding of forestry. No graver responsibility rests upon our legislators than this. Give this question the attention its importance deserves.

In conclusion, we would say that the business of horticulture is one of the noblest occupations of the world, if carried on with a faithful spirit. The results of our work contribute directly and powerfully to the betterment of mankind. We minister to the health and moral stature of the community. We work with the great forces of nature. We form alliances with sunshine and rain and the secret affinities of the soil. We manipulate the occult energies of chemistry. Science is called to our rescue and contributes to our advancement. And then we join hands with Providence to produce our harvests. I would have every horticulturist regard his vocation with becoming pride. The American fruit grower, like the American farmer, should hold his head proudly but reverently, as the best man in the world. He is not free from cares, trials and perplexities, but these dwindle into insignificance when compared with the burdens borne by the great majority of the sons of men. And as he labors, not alone for self, but for all mankind, the pleasures of life which come to him from a consciousness of duty well done render his cup of joy about as full as it is ever allotted to mortal man.

With a wide range of topics on our program, and such able assistance from abroad, I trust we will make this one of the most instructive and profitable meetings we have ever held.

President Stevens resumed the chair and called for the annual reports of the Secretary and Treasurer.

SECRETARY'S REPORT.

Report of W. B. Flick, Secretary, for the year ending October 31, 1902:

Receipts—

Received from members as dues.....	\$44 00
Received from Sylvester Johnson, Treasurer.....	50 15
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Total receipts	\$94 15
Balance due Secretary.....	18 52
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	\$112 67

Expenditures—

Paid for postage	\$27 00
Paid for expressage	12 80
Paid for drayage	70
Paid for freightage	2 55
Paid for labels for Experimental Orchard.....	3 75
Paid for photos	9 00
Paid for wrappers for annual report.....	4 00
Paid for printing, stationery supplies.....	50 15
Paid for typewriting to Professor Beach.....	2 72
<hr/>	
Total expenditures	\$112 67

Vice-President Davis: Does the Secretary's report include our appropriation from the State?

Secretary Flick: No, sir; that did not come to my hands. That will appear in the report of the Treasurer.

TREASURER'S REPORT.

For the year ending October 31, 1902:

Nov. 1, 1901. Received from Secretary James Troop..	\$55 62
Legislative appropriation	1,000 00
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Total receipts	\$1,055 62
Expended during the same time as per	
vouchers herewith	\$1,024 19
Balance in treasury.....	31 43
<hr/>	
	\$1,055 62

All of which is respectfully submitted,

SYLVESTER JOHNSON, Treasurer.

Treasurer Johnson: I simply made an abstract of the vouchers. They are all in a book which I shall give the committee you may appoint to audit them. The State Printing Board has objected to our voluminous report, so this year I cut it down. I received the State appropriation of \$1,000 since that report was made.

On motion, the annual address of the President was referred to a Committee on President's Address.

A motion was made and carried that the reports of the Secretary and Treasurer be referred to the Auditing Committee.

President Stevens appointed as such Auditing Committee: L. B. Custer and Snead Thomas.

The following report on Purdue University was read by Mr. Sylvester Johnson:

Sylvester Johnson: As your representative on the Board of Trustees of Purdue University it is my duty, as well as pleasure, to make this report:

REPORT OF TRUSTEE OF PURDUE UNIVERSITY.

The past year has been one of unusual prosperity for Purdue University, Indiana's College of Agriculture and the Mechanic Arts. The enrollment reached very closely the twelve hundred mark, and for the year just opening promises to be very much larger. Very few of our citizens realize the constant growth, both in numbers and importance, of this institution, which is briefly told by the following table, as well as by the fact that the demand for her graduates has been for several years greatly in excess of the ability to meet, so that on commencement day every one so desiring is in possession of a good position in line with his studies.

Purdue offers six courses of studies, as follows: Agriculture, applied science, civil, electrical and mechanical engineering, and pharmacy. Sixteen hundred and fifty-eight students have been graduated from the institution, and over 5,700 have received instruction for a longer or shorter period. The records of its graduates indicate that, to an unusual degree, they have taken a prominent part in the active industries of life. The following table, showing the annual increase of students and graduates, will no doubt interest all:

YEAR.	DEGREES GRANTED.				STUDENTS.									
	Bachelors.	Advanced.	Pharmacy.	Total.	Post Graduates.	Seniors.	Juniors.	Sophomore.	Freshmen.	Elective and Special.	School of Pharmacy.	Winter School of Agriculture.	Total.	Preparatory Department.
1875	1	.....	.....	1	.....	1	.....	3	9	2	.....	.....	15	49
1876	1	.....	.....	1	.....	1	.....	6	8	1	.....	.....	17	49
1877	12	.....	.....	12	1	2	6	6	23	22	.....	.....	60	79
1878	4	3	.....	7	3	4	5	12	28	13	.....	.....	65	101
1879	2	1	.....	3	1	2	14	15	34	10	.....	.....	76	119
1880	7	.....	.....	7	2	7	11	22	36	8	.....	.....	86	117
1881	8	.....	.....	8	2	8	13	30	39	21	.....	.....	113	141
1882	8	2	.....	10	3	11	20	18	47	12	.....	.....	111	127
1883	15	1	.....	16	3	15	13	20	37	18	.....	.....	106	113
1884	10	.....	.....	10	4	12	14	20	42	20	.....	.....	112	101
1885	10	1	.....	11	2	12	16	16	67	7	7	.....	127	132
1886	16	1	7	24	3	16	10	27	76	14	13	.....	159	156
1887	8	1	5	14	11	8	34	49	91	18	19	.....	230	162
1888	24	2	4	30	26	26	31	42	78	24	28	14	269	99
1889	26	7	6	39	34	29	32	52	92	46	28	15	328	111
1890	29	8	16	53	34	29	38	66	105	23	48	5	348	115
1891	34	6	22	62	32	35	51	67	151	17	66	.....	419	111
1892	41	12	21	74	37	45	56	104	200	24	70	13	549	94
1893	44	17	22	83	27	46	87	138	161	18	87	28	582	95
1894	70	14	36	120	25	73	104	119	166	25	85	29	626	56
1895	77	15	35	127	36	78	99	125	135	37	90	33	633	.....
1896	81	11	25	117	37	81	94	114	174	17	75	43	635	.....
1897	74	22	33	129	50	73	95	150	136	42	88	30	664	.....
1898	74	25	36	134	57	73	133	124	171	62	95	35	750	.....
1899	102	23	33	158	62	103	84	148	180	72	60	40	749	.....
1900	73	10	21	103	52	71	127	160	241	31	75	92	849	.....
1901	102	13	35	150	42	106	133	233	335	29	91	80	1,049	.....
1902	119	18	39	176	51	115	182	304	345	15	92	85	1,189	.....

Tuition is free to residents of the State. Nonresidents pay an annual tuition fee of \$25, and all students pay certain fixed fees to cover the actual cost of materials and privileges furnished.

In addition to the regular faculty, numbering eighty-four, the institution employs, from time to time, the services of lecturers on topics of special interest to the students. Those taking up subjects of interest to students in the school of agriculture were, during the past year, Alexander Galbraith, of Janesville, Wis., who lectured on horses; H. P. Miller, of Sunbury, Ohio, on sheep; O. E. Bradfute, of Cedarville, Ohio, on cattle; T. E. Orr, Pittsburg, Pa., on poultry; W. B. Anderson, Otwell, Ind., on swine; C. M. Hobbs, Bridgeport, Ind., on horticulture; Cal Husselman, Auburn, Ind., on business methods; H. F. McMahan, Manhattan, on domestic economy. Each series of lectures continued for a week or more.

It is interesting to note the practical nature of the work being done by the students, as evidenced by the character of the theses submitted for graduation. Almost without exception they deal with problems of great importance to the community at large. In addition to their instruc-

tional work the faculty of the institution are prominently identified with the leading scientific, industrial and economic associations throughout the country and not only render valuable service to Farmers' Institutes and other organizations as lecturers, but are frequently called upon for expert service in connection with the various industries throughout the State, besides publishing articles of great value along these lines. The pamphlet bulletins issued by the Experiment Station are widely disseminated throughout, not only Indiana but the entire country, and in addition to these publications of a more or less scientific character, the station publishes in the agricultural press short articles on topics of general interest and value to the farming community.

A valuable addition to the equipment of the University has been made during the year just closed by the erection of a handsome building designed for the exclusive use of the School of Agriculture and Horticulture.

This is a two-story building on a high basement, of dignified but plain design, the materials used being pressed brick and Bedford stone. An appropriation of \$60,000 was made for the erection of this building by the Legislature of 1901, and it has been completed for something less than that amount. It contains laboratories, class rooms, assembly hall, museum, library, and assembly rooms for Farmers' Institutes, etc. It was completed in season to be opened at the beginning of the present academic year, and is now in process of equipment which, when completed, will be among the finest offered by any agricultural college in the country.

Another valuable addition has been made to the University in the gift, by the late Mrs. Fowler, of Lafayette, of \$70,000 to be devoted to the erection of an auditorium. Thus affording a gathering place for students and faculty upon occasions of general interest which has been lacking for many years, in fact ever since the enrollment exceeded the few hundreds which could be accommodated in the small assembly room located in University Hall.

In spite of these additions to its facilities, the institution suffers at the present time from a greatly overcrowded condition.

The increased attendance has crowded buildings, shops and laboratories to a point not to be endured as a permanent condition. Practically the same buildings, with the exception of the agricultural building just completed and the additional recitation rooms obtained by remodeling the old dormitory, are in use for the accommodation of the largely increased number of students as in 1899. To do this it has been necessary to increase the number of sections, assigning more and more to each instructor until, in some of the departments, the teachers work more hours a day and for less pay than a skilled mechanic, under present labor conditions. Lecture rooms have had to be crowded far beyond their capacity, the hours given to each student lessened in number, and every

available corner of shops and laboratories has had to be crowded with apparatus and machinery.

The standards of admission have been raised and enforced with great rigor, and many students have been turned away, yet the present freshman class numbers 375. Students in this class have been enrolled provisionally, as it could not be undertaken to furnish instruction to any such number another year under existing conditions.

Students must continue to be turned away unless a larger income can be obtained, both for instruction and maintenance, and for the provision of additional facilities in the way of buildings and equipment; for while the attendance of students has increased eighty per cent. within the past five years, the income has grown but fifteen per cent.

Since the institution was opened there has been received from the State, for all purposes whatever, \$1,102,270. Of this amount \$311,212 was for the permanent equipment of the institution. From the United States and other sources, \$1,964,086 has been received.

For this investment of something more than a million by the State, she now holds University property valued at \$737,682 as follows: Grounds, \$100,000; buildings, \$451,300; apparatus, \$168,212; furniture, etc., \$18,170; besides having, as has been said, graduated 1,659 men and women who went out into the world well equipped to help others as well as themselves, and having aided in a similar way, to a greater or less extent, nearly 6,000 others.

The present income of the University is something less than \$150,000, of which all but about \$66,000, comes from sources aside from State aid, which aid is principally given in the form of a State educational tax, amounting for Purdue to one-twentieth of a mill on the dollar.

At present the pressing needs of the University are a new building for the Physics Department, now attempting to instruct over four hundred students in laboratories and class rooms intended for less than half that number; new shops for the department of practical mechanics, relieving the tension in the Engineering Building by allowing the upper classes to occupy the room given up to the shops and foundry; a new gymnasium, which will afford opportunity for physical development so necessary when the mental work is of such an arduous character as in a school like Purdue, and above all, an income which will provide for these improvements as well as for securing the additional instructors needed to care for the overcrowded classes.

The work of the Agricultural Experiment Station continues to grow in effectiveness, but is much hampered by lack of means, which forbids the publication of many valuable researches, the reprinting of many publications of which the supply is exhausted, but for which the demand still continues, and the more general dissemination of many of the publications now issued. Indiana is almost unique in her treatment of her agricultural experiment station for which no appropriation has ever been

made and which must rely for its support upon the annual appropriation of \$15,000 received from the United States, supplemented by the limited aid the University is able to render.

The Farmers' Institute work under the very efficient management of Superintendent W. C. Latta, has undergone a very notable extension with greatly added interest since the increase of the appropriation to \$10,000 per annum as the following exhibit will show.

During the year ending June 30, 1902, institutes were held as follows:

Annual institutes (one in each county).....	92
District special meetings.....	4
Supplemental (two days each in sixty-two counties)....	74
Supplemental (one day each in eleven counties).....	21
<hr/>	
Total	191
Total attendance at ninety-two institutes.....	23,897
Average attendance at annual institutes.....	259

I have not full data as to the attendance at the supplemental institutes. Many of these meetings were quite as successful as the annual institutes. They were so placed as to accommodate a distinctly new class of farmers to whom the annual meetings are not usually accessible.

In addition to the above, a Woman's Conference was held in Lafayette in August, 1901, and a general conference of institute workers in October of the same year.

The figures given above do not adequately set forth the growth of the institute work. The local officers in several counties are undergoing a process of education which enables them to prepare better programs from year to year. The institute speakers are not only acquiring added experience, but increased facility and felicity of expression. They now have a number of institute workers who will rank well in comparison with such men and women in other States.

The interest in the work is well sustained. Now and then a meeting is poorly attended, due chiefly to the inefficiency of the chairman in the previous work of advertising.

There is an encouraging tendency to form woman's auxiliaries of the several institutes and a growing demand for women institute workers who can be as helpful to the farmers' wives and daughters as the men workers are to the farmers themselves.

The institutes are just entering upon their first year for which they receive full \$10,000 to expend in institute work. The institute schedule shows that in addition to the ninety-two annual institutes, which have been held heretofore, arrangements have been made for seventy-six supplemental meetings, making a total of 186 already arranged for. This number will be considerably increased, so that by the end of the current

season, March 31st, next, there will doubtless have been held 175 or 180 institutes, under State auspices, in addition to quite a number of independent meetings at points which the Superintendent will be unable to take care of during the present year.

The above showing, as to number of meetings held, will compare favorably with that made by other States. I believe the quality of the work done by the assigned speakers will, also, compare favorably with that the workers in this field in other States.

The definite purpose of the general management, with reference to supplemental institutes, is to carry them into localities remote from the annual meetings. In order to do this schoolhouses and churches of smaller size, in rural neighborhoods, must be utilized. Under such circumstances large attendance will frequently be out of the question. It is important, however, to reach these outlying points as frequently as possible in order that the benefits of the institute work may be as equitably distributed over the State as possible.

I might add, further, although it does not come within the University year above named, that the conference of institute workers held at the University last month, far exceeded in numbers, interest and character of work done, any preceding conference, and this augurs well for the effectiveness of work during the current season.

It seems to me that this institute work, reaching as it does all parts of the State, and carrying with it as it does in its investigations and discussions invaluable information on the subject of horticulture as well as agriculture, ought to receive by the members of the Society, ardent support by attendance and in the discussion, wherever its sessions are within reasonable distance from their respective homes.

WORK IN HORTICULTURAL DEPARTMENT, UNDER THE WISE AND INTELLIGENT MANAGEMENT OF PROF. JAMES TROOP.

The work in the Horticultural Department has kept pace with that in the other departments. A year ago last September, Prof. Wm. Stuart was transferred from the Botanical Department, and made Associate Horticulturist of the Experiment Station. The work of the Experiment Station was then divided, Professor Stuart taking the work in vegetable gardening and Professor Troop the work in fruit growing.

Unfortunately for Purdue the trustees of the University of Vermont thought they needed Professor Stuart more than we did, and so, at the beginning of last September, he severed his connection with Purdue and accepted the position of Professor of Horticulture in that institution. This leaves the work in this department for the present entirely in the hands of Professor Troop, who, in addition to the work in horticulture of both University and Experiment Station, is also carrying the Ento-

mological work of both of these departments. We realize that this is too much for any one man to carry, and hope that in the near future we may be able to fill the vacancy caused by the resignation of Professor Stuart.

The experiment work of the year, as already indicated, has been along two lines. During the winter some valuable results were obtained in the forcing of melons, cucumbers, lettuce and tomatoes, in the greenhouse. During the past summer extensive experiments were carried on with melons and other vegetables in the open field; also testing the relative merits of different insecticides and fungicides in the orchard, the value of leguminous plants, especially soy beans and cow peas, as a source of nitrogen for the orchard, whole and piece root grafting, varietal tests of small fruits, etc.

The number of students receiving instruction along horticultural lines, during the past year, has been sixty-eight. This has included work in pomology, landscape gardening, vegetable gardening, floriculture, economic botany and economic entomology, all of which have been taught by Professor Troop.

The new and magnificent Agricultural Hall (which I do not think any kindred hall in the United States excels) is already proving to be a drawing card. Students are turning their attention that way. Four large, well-lighted rooms in this building are for the exclusive use of the students in horticulture, and it is safe to say that as soon as this building is equipped with the necessary apparatus, which is being furnished as rapidly as circumstances will permit, there will be no more attractive place in the University than this.

In conclusion, I will say that the utmost harmony exists among the trustees, faculty and students and that if Purdue shall receive the aid she is entitled to from the State through its future Legislatures, it will become one of Indiana's greatest boons.

Mr. Zion: Does your report show the number of students in Purdue University from outside the State?

Mr. Johnson: No sir.

Mr. Zion: That would be a valuable part of the report. No doubt the taxpayers will be asked for a further appropriation and this information will be valuable. It strikes me that it is only right that the tax should be greater on the noncitizen of the State. I am decidedly in favor of this report showing the number of students attending Purdue University who are nonresidents of the State of Indiana. If the taxes are increased on the residents of the State, we should take care to see that they are also increased on the nonresidents.

Mr. Johnson: Doubtless this information can be obtained at the University, and if the Society wishes to have it inserted in the report I shall take steps to secure it and insert it.

On motion Mr. Johnson was instructed to obtain this information and insert it in his report.

Mr. Hale: I have followed the reading of the report closely, but it is not clear to my mind whether the number of students in the Agricultural Department is given.

Mr. Johnson: No; the total number of students in all departments was given.

Mr. Kingsbury: I suggest that that also be incorporated in the report. The number of both agricultural and horticultural students should be given.

Mr. Johnson: Professor Troop is here; perhaps he can give you now the information you wish.

Mr. Troop: I can not give the exact figures from memory, but they can be had from the University.

Mr. Johnson: I want to say, in addition to the report, that if the people of Indiana, especially the boys and young men, could see the new Agricultural Building and the facilities for acquiring an agricultural and horticultural education, I think the number of students in those departments would largely increase. It is certainly the finest building for the purpose I have ever seen. I know that young men and young women who have any disposition to master the two sciences of agriculture and horticulture, if they could see the new buildings at Purdue University, would want to go there.

REPORT OF STATE ENTOMOLOGIST, 1902.

PROF. JAMES TROOP.

I suppose most of the members of this Society know that the State Entomologist is really a child of this Society, and consequently his report to this Society is fitting at this time. I suppose, too, that most of the members understand the provisions of the law that was passed by the Legislature four years ago.

The main purpose of the nursery inspection law, as originally passed, was (1) to prevent the further introduction of injurious insects and fungus

diseases, notably the San Jose scale (*Aspidiotus perniciosus*, Comstock), which has caused so many thousands of dollars of damage to the orchards of the State by having been introduced upon nursery stock, and (2) to prevent the further spread of these pests by providing some means of eradicating them from localities where they had already become established.

In order to accomplish the first result the law requires all nursery stock which is shipped into this State from other States to be accompanied by a certificate bearing the signature of the State or Government Entomologist and stating that said nursery stock has been duly inspected according to law. And, as a further precaution, all nurserymen within the State are required to attach a similar certificate to stock sent out from their respective nurseries.

In the second place it is made the duty of the State Entomologist to inspect all nurseries in the State, at least once each year, and also to inspect infested orchards, or those thought to be infested with San Jose scale, etc., prescribe remedies for their treatment, and see that these remedies are properly administered. It is also manifestly his duty to investigate all other outbreaks of injurious insects as they may occur from time to time, and to assist whenever and wherever possible in holding them in check. As the San Jose scale had become well established in several localities in the State before the law was passed, the problem of eradication of this insect has been the most serious one with which we have had to deal.

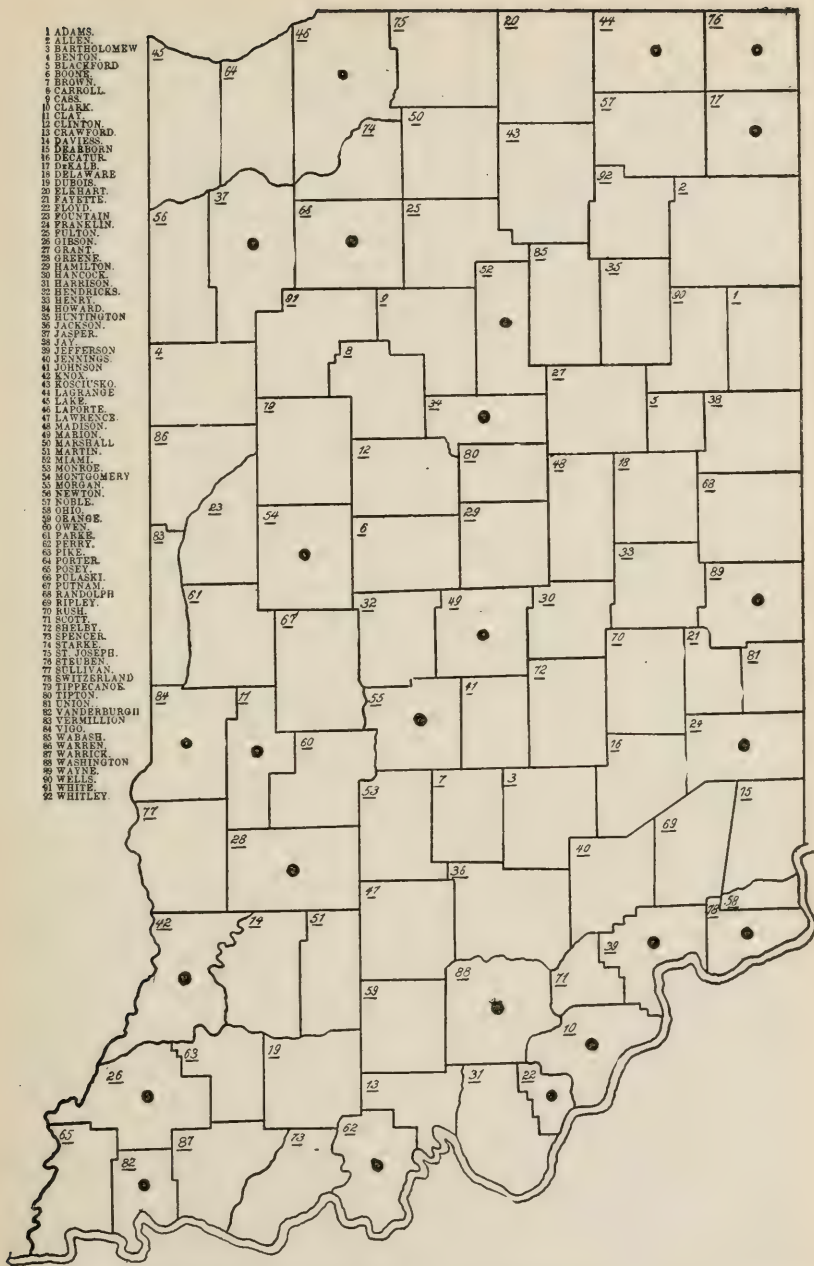
NURSERY INSPECTION.

My corps of assistants for the past year has been the same as last (1901), except Mr. J. Clyde Marquis, a student of entomology in Purdue University, was appointed in the place of Taylor Fouts, resigned. During the inspection period, which extends from June 1 to October 1, we have inspected 160 nurseries, which are distributed over fifty-eight counties, extending from the Ohio river to the Michigan line. All except one were found to be apparently free from all dangerously injurious insects or plant diseases and have been granted certificates. The one excepted is located in an infested district with San Jose scale all around it, and a few infested trees were found in it. For this reason a certificate was withheld.

SCALE-INFESTED LOCALITIES.

Last year I reported the San Jose scale as having been found in twenty-four counties. To these Montgomery has been added, making twenty-five counties in which the scale has been found to date. Of these only four are considered at all serious. These are Marion, Switzerland, Washington and Vanderburgh. Nine of the originally infested counties are, to the best of my knowledge and belief, practically free from the

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 42 KOSCIUSKO.
 43 LAGRANGE
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 45 LAPORTE.
 46 LAWRENCE.
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 51 MIAMI.
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 55 NEWTON.
 56 NOBLE.
 57 OHIO.
 58 ORANGE.
 59 OWEN.
 60 PARKER.
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 62 PIKE.
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 64 POSEY.
 65 POLASKI.
 66 PUTNAM.
 67 RANDOLPH
 68 RIPLEY.
 69 RUSH.
 70 SCOTT.
 71 SHELBY.
 72 SPENCER.
 73 STARK.
 74 ST. JOSEPH.
 75 STUBBS.
 76 SULLIVAN.
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 81 VANDERBURGH
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 90 WHITE.
 91 WHITLEY.
 92



Map showing the counties which have been infested with San Jose scale.

scale. This has been brought about, in some cases, by adopting heroic measures, that of cutting down and burning, but I am satisfied that the end has justified the means.

Only two infested localities have been found in Marion County outside the city of Indianapolis, and these have been practically cleaned up, but the city itself has been very seriously infested. The source of this infestation is not known to me, except that the trees were bought from a traveling agent representing some foreign nursery. Owing to the limited amount of means at my disposal, I was unable to do justice to this place single-handed, but by enlisting the co-operation of the City Forester and Superintendent of Parks, Mr. J. Clyde Power, we have succeeded in accomplishing a large amount of work along this line. A most systematic search was made in every part of West Indianapolis, where the scale was most abundant and both verbal and written notices given to the property owners to remove or spray such trees as were infested with the scale. In addition to this Mr. Power placed a competent man in the field with a spray pump and a supply of petroleum with instructions to cut and burn every tree that was past recovery, and spray the rest. As a result nearly 2,000 places have been visited within the past two years. More than 1,000 trees and shrubs have been ordered cut and burned, and nearly 500 sprayed. But the scale has found a lodgment in other parts of the city, in some cases near the parks, so that the work here is not yet accomplished by any means. It is to be hoped that the City Park Commissioners will see this matter in its true light and appropriate sufficient funds for carrying on the work during the coming year.

In Jefferson County, where the San Jose scale was formerly very abundant, especially near the city of Madison, the fruit growers have taken the matter up and have combatted it with such success that I now know of but two infested orchards in this county. One of these is near Madison and the other near Hanover.

In Perry County the scale had become well established in two or three localities not far from the Ohio River. My assistant visited that locality in July and prescribed a remedy which was at once applied by those immediately interested. Those trees which were infested the worst were cut down and burned and the remainder were sprayed with the whale oil soap solution. If the general spirit of progress and eagerness to learn how to combat these pests shown by the fruit growers in this locality could be found all over the State the work of the State Entomologist would be reduced to a minimum. It is safe to say that Perry County will soon be free from the presence of the San Jose scale.

In Vanderburgh County, near the city of Evansville, the situation is different. The San Jose scale had become well established before it was discovered. Over fifty different orchards and city lots were found to be infested. A large per cent. of these have been well cleaned up, but other outbreaks are being discovered so that the problem has become a serious

one in this locality. My assistant visited this section three times during the past summer and autumn and each time found new localities where the scale existed. In his report he says: "I visited a good many places in the suburbs of the city and found scale at every one. It has become so thoroughly established that it can not be checked except by a wholesale cutting and burning and by a thorough use of the spray pump in the hands of a competent man. The infested trees mostly belong to people who have small places, and as a rule do not like to lose them or to go to the expense of spraying. It requires an official notice for each one, and then a second trip later in order to be sure that the work has been done. Almost all raise some objections to doing the work as required by law."

Here is a marked contrast to the conditions found in Perry County, where the fruit growers are awake to their own interests.

At this point I wish to repeat what I said in my report one year ago, that "in view of the fact that a large part of this section of the State is well adapted to fruit growing, and that numerous commercial orchards are already being developed there, it is exceedingly important that object lessons be given these people in the matter of exterminating or holding in check the various insect and fungous pests of the orchard. This can only be done by placing a competent man in the field with the necessary spraying outfit where the San Jose scale now exists, and keeping him there until the entire infested district has been covered. This I have not been able to do on account of our meager appropriation, which is barely enough to complete the inspection of the nurseries of the State as required by law."

A little more than a year ago my assistant found the San Jose scale on some fruit trees in the town of Linton, Greene County. This county probably contains more nurseries than any other county in the State, and so efforts have been made to clean up this scale-infested spot, but most of these town lots are either owned or rented by miners who are not accustomed to the use of spray mixtures or do not have the time to devote to the work of spraying. However, it was found, during the past summer, that many of the infested trees had been cut down and burned and the instructions followed, except in a few cases; so that only a few live insects were found; but the fact that this insect multiplies at such an exceedingly rapid rate* makes it an enemy to be dreaded by every fruit grower and especially by the nurserymen whose premises are located within a few miles of the infested spot.

During the year I found eight new outbreaks of the scale. One of these is in Montgomery County, near Ladoga, one in Wayne County, near the Fayette County line, two in Jefferson County, already mentioned, and four in Switzerland County. With the exception of Switzerland County, these are all mild cases, being confined to single orchards, and can be easily controlled if looked after carefully.

*It has been demonstrated that a single female scale may become the progenitor of more than three billions of individuals, in a single season.

Those in Switzerland County originated from scale-infested trees received from a nursery in New Jersey some ten or twelve years ago, and so the insects are badly scattered and will have to be carefully watched for some time. A general ignorance concerning the nature of the insect, as well as of the measures intended for its control, has prevented its discovery until recently.

TRANSPORTATION COMPANIES.

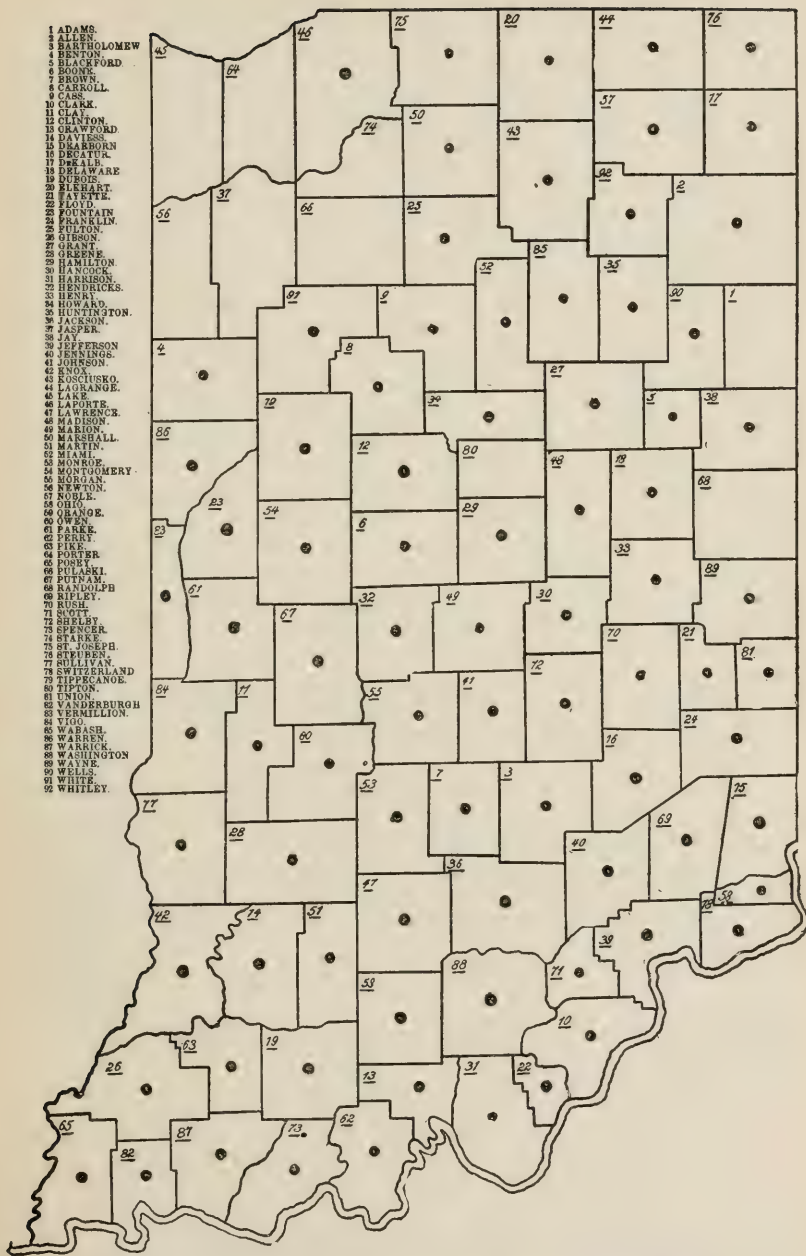
Although, doubtless, many packages of trees and shrubs which have not had the required certificate attached, have been brought into the State by railroads and express companies, yet I do not believe that the law has been violated, knowingly, to any great extent. Only two cases of violation of the law by delivering trees without first notifying the State Entomologist have come to my knowledge in the last four years, and I am satisfied that these were done through ignorance of the law.

INVESTIGATION CONCERNING OTHER SPECIES.

This was the year for the seventeen-year locust (*Cicada septendecim*, Linn.) to make its appearance, consequently some observations were made as to the time of its appearance, injury done, etc.

This insect is well known in most parts of the United States and as its name implies, generally requires seventeen years in which to complete its development or life history, although farther south the period of development is shorter, requiring only thirteen years to pass through its transformation. The term "locust" as applied to this insect is misleading, because we are accustomed to associate the name "locust" with the grasshopper family, whereas, in the general division of insects into orders and families, entomologists have placed this one with the Hemiptera or true bugs, the distinguishing characteristics being found in the mouth parts; the grasshopper having well developed jaws for biting, while the seventeen-year locust has its mouth parts arranged into a stout sucking beak. This latter insect, therefore, can only take its food in the liquid or semi-liquid form and does not disfigure the foliage of plants as does the grasshopper and other leaf-eating insects. The proper name for this insect, therefore, is seventeen-year cicada (*Cicada septendecim*), and the only real damage done by the adult is during the egg-laying period. Many people have observed this operation during the past summer. The female is provided with a stout ovipositor which she inserts into the young twigs, filling the insertion with eggs, repeating the operation until her store of eggs is exhausted. She then soon dies. The eggs hatch in a few weeks and the young then leave the twig and go into the ground and attach themselves to young roots of plants and feed upon their juices for the next sixteen years, transforming in the spring or early summer of the seventeenth year to the adult or winged state, in which condition it remains only three or four weeks.

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 26 GIBSON.
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 90 WHITLEY.



Map showing counties in which the 17-year Cicada appeared in 1902.

As this insect appears only once in seventeen years it naturally creates considerable excitement, especially among the younger people, as the time for its appearance draws nigh. Many stories have been told and many warnings have been issued by the knowing ones concerning the havoc which it is likely to create. In order to ascertain the facts in the case, concerning the amount of damage done, I prepared a list of questions and sent them out about the first of last May, to about 200 of the prominent farmers, sending them to every county in the State. Among the questions asked were these: "Date of first appearance?" "Date of last appearance?" "What species of trees were most injured?" "Did they do much injury to fruit trees, especially to newly set orchards?" As a result ninety-two counties were heard from. Eighty-three counties reported the presence of the insect in more or less abundance, and nine reported none. These were Lake, Porter, Newton, Jasper, Starke, Pulaski, Adams, Tipton and Randolph—all northern counties. The date of appearance ranged from May 10th in the southern counties to June 1st in the northern, and the time of disappearance ranged from June 10th in the south to June 30th in the north. Twenty counties reported more or less damage to fruit trees, but in almost all cases where serious injury was reported the orchard stood in close proximity to the forest or near where a forest had recently stood. Sixty-two reported no damage to orchards. In newly set orchards, that is, in orchards set out last spring or a year ago this fall, ten reported some damage and sixty-seven reported no injury whatever. It is a well known fact that this insect prefers forest trees in which to oviposit; but occasionally this rule seems to have been violated, as, for example, in a few instances which came under my observation young nurseries, of one and two-year-old trees, were almost surrounded by a dense forest, and the fruit trees were quite badly damaged. But the insects in these particular localities were exceedingly omnivorous, and the young and tender branches of the nursery stock afforded a handy place for depositing their eggs. Such circumstances, however, were comparatively rare. Of the more than 150 nurseries inspected, it is safe to say that not one-fourth of one per cent. of the trees were permanently injured by this insect.

The accompanying map will show in which counties the Cicada made its appearance.

A tabular statement concerning this insect also follows:

A TABULAR STATEMENT CONCERNING THE SEVENTEEN-YEAR CICADA.

COUNTY.	Place.	Name of Sender.	Did the Locusts Appear?	Portion of County.	Date of Appearance.	Numerous or Not?	Did They Injure Fruit Trees?	Kinds Suffered Most.	Did They Injure Newly Set Trees?
Adams.....	Monmouth.....	C. D. Kunkle.....	No.....	All.....	5-29.....	Not.....	No.....	Apple.....	No.....
Allen.....	Fort Wayne.....	A. S. Kittredge.....	Yes.....	All.....	6-30.....	Not very.....	No.....	All alike.....	No.....
Bartholomew.....	Elizabethtown.....	F. S. Tynes.....	Yes.....	All.....	6-30.....	Not.....	No.....	Apple.....	No.....
Benton.....	Oxford.....	T. A. Baldwin.....	Yes.....	All.....	5-23.....	Not.....	No.....	Apple.....	No.....
Blackford.....	Hartford City.....	T. Clapper.....	Yes.....	All.....	5-22.....	Yes.....	Slight.....	No difference.....	No.....
Boone.....	Lebanon.....	S. T. Stephenson.....	Yes.....	All.....	5-21.....	Yes.....	No.....	Forest.....	No.....
Brown.....	Nashville.....	J. F. Bond.....	Yes.....	All.....	6-15.....	Yes.....	No.....	No difference.....	No.....
Carroll.....	Camden.....	Taylor Fouts.....	Yes.....	All.....	5-18.....	No.....	Not much.....	No difference.....	No.....
Cass.....	Logansport.....	O. Powell.....	Yes.....	All.....	5-20.....	Yes.....	No.....	No difference.....	No.....
Clark.....	Henryville.....	J. W. Williams.....	Yes.....	North.....	5-16.....	Yes.....	No.....	No difference.....	No.....
Clay.....	Center Point.....	R. L. Kennedy.....	Yes.....	All.....	5-15.....	Yes.....	No.....	No difference.....	No.....
Clinton.....	Mulberry.....	D. J. Clark.....	Yes.....	All.....	6-10.....	Yes.....	No.....	No difference.....	No.....
Crawford.....	.....	J. C. Marquiss.....	.....	.....	5-20.....	Yes.....	No.....	No difference.....	No.....
Dearborn.....	Dillsboro.....	Henry Bacheson.....	Yes.....	All.....	5-12.....	Yes.....	Yes.....	Apple.....	No.....
Decatur.....	Greensburg.....	G. C. Miller.....	Yes.....	All.....	6-15.....	No.....	No.....	Apple.....	Yes.....
Dekalb.....	Auburn.....	L. B. Cochran.....	Yes.....	All.....	5-12.....	No.....	No.....	Apple.....	No.....
Delaware.....	Daleville.....	A. W. Shoemaker.....	Yes.....	Scattering.....	5-25.....	No.....	No.....	Apple.....	No.....
Dubois.....	Holland.....	A. B. Henner.....	Yes.....	All.....	5-18.....	Yes.....	Some.....	Apple, peach.....	No.....
Elkhart.....	Bristol.....	A. Y. Cathcart.....	Yes.....	All.....	5-15.....	Yes.....	Near timber.....	Timber.....	No.....
Fayette.....	Harrisburg.....	Gunt Williams.....	Yes.....	All.....	5-15.....	Yes.....	No.....	No difference.....	No.....
Floyd.....	Duncan.....	G. B. Harrell.....	Yes.....	Center.....	5-17.....	Yes.....	Yes.....	Six years old.....	No.....
Fountain.....	Kingman.....	J. M. Best.....	Yes.....	All.....	5-18.....	Yes.....	Not much.....	Apple.....	No.....
Franklin.....	Brookville.....	L. J. Wilson.....	Yes.....	All.....	5-10.....	Not.....	No.....	All alike.....	No.....
Fulton.....	Rochester.....	Isaiah Imler.....	Yes.....	Northwest.....	6-20.....	No.....	No.....	No difference.....	No.....
Gibson.....	Owensville.....	W. D. Johnson.....	Yes.....	All.....	5-20.....	Yes.....	No.....	No difference.....	No.....
Grant.....	Marion.....	Snead Thomas.....	Yes.....	One township.....	5-20.....	Yes.....	Yes.....	No difference.....	No.....
Greene.....	Scotland.....	W. C. Bennett.....	Yes.....	All.....	5-15.....	Yes.....	Yes.....	Peach.....	No.....
Hamilton.....	Westfield.....	Jesse Cox.....	Yes.....	All.....	5-15.....	Yes.....	Slightly.....	Apple.....	No.....
Hancock.....	Greenfield.....	J. K. Henby.....	Yes.....	All.....	6-20.....	Yes.....	No.....	Peach, plum.....	No.....
Harrison.....	Breckenridge.....	J. S. Primmer.....	Yes.....	All.....	5-12.....	No.....	No.....	.....	No.....
Hendricks.....	Danville.....	L. A. Barnett.....	Yes.....	All.....	5-20.....	Not.....	No.....	.....	No.....

A TABULAR STATEMENT CONCERNING THE SEVENTEEN-YEAR CICADA--Continued.

COUNTY.	Place.	Name of Sender.	Did the Locusts Appear?	Portion of County.	Date of Appearance.	Date of Disappearance.	Numerous or Not?	Did They Injure Fruit Trees?	Kinds Suffered Most.	Did They Injure Newer Trees Than Others?
Henry	Raysville	J. Bird & Son	Yes	All	5-20	6-20	Yes	No	Peach, plum	No.
Howard	Kokomo	L. C. Hoss	Yes	All	5-23	6-20	Yes	No	No difference.	No.
Huntington	Huntington	Ben Bitter	Yes	South part	5-23	6-20	Yes	No	No difference.	No.
Jackson	Freetown	Brownstown Nursery Co.	Yes	All	5-15	6-20	Quite	No	No difference.	No.
Jasper	Rensselaer	M. J. Adams	No							
Jay	Wall	M. M. Bowman	Yes		5-15	6-20	Not	No		No.
Jefferson	Madison	R. H. Wood	Yes	All	5-18	6-20	Yes	No	No difference.	No.
Jennings	Hayden	D. B. Ewan	Yes	All	5-15	6-18	Yes	Yes	Small	Yes.
Johnson	Franklin	H. P. Dean	Yes	All	5-15	6-15	Yes	No	Nursery stock	No.
		H. E. Lochry								
Knox	Vincennes	H. M. Simpson	Yes	All	5-13	6-15	Yes	No	Timber	No.
Kosciusko	Warsaw	J. L. Cook	Yes	In timber	6-1	6-20	Not	No	Oak grubs	No.
Lagrange	Wolcottville	J. C. Mossman	Yes	South	6-1	7-8	Yes	No		No.
Lake	Crown Point	E. H. Hixon	No							
Laporte	Laporte	H. W. Henry	Yes	Very few	5-25	6-20	No	No		No.
Lawrence	Michell	J. A. Burton	Yes	All	5-13	6-15	Not	Yes	Apple, peach	Yes.
Madison	Anderson	W. H. Thornburgh	Yes	Near river	5-15	6-20	Yes	Yes	Young	No.
Marion	Lawrence	W. B. Flick	Yes	Timber land	5-21	6-15	Yes, in timber	No		No.
Marshall	Bourbon	C. M. Parks	Yes	Scattering	5-25	6-15	No	No	No difference.	No.
Martin	Shoals	J. M. Sherfick	Yes	All	5-12	6-15	Yes	Very little		No.
Miami	Miami	S. R. Gustin	Yes	All	5-20	6-15	Yes	No	No difference.	No.
Monroe	Clea Creek	J. L. May	Yes	All	5-10	6-25	Yes	Slight	No difference.	No.
Montgomery	Crawfordsville	Wm. Stuart	Yes	All	5-16	6-20	Yes	No	No difference.	No.
Morgan	Mooreville	O. P. Macy	Yes	All	5-20	6-25	Yes	No	Apple	No.
Newton	Goodland	S. H. Dickson	No							
Noble	Wolcottville	J. C. Grossman	Yes	Few	5-25	6-20	Not	No		No.
Ohio	Rising Sun	W. B. Harris	Yes	Northwest	5-10	6-10	Not	No	Apple	Yes.
Orange	Rego	G. W. McIntosh	Yes	All	5-16	6-20	Yes	Slight		Yes.
Owen	Spencer	E. L. Daggy	Yes	All	5-15	6-15	Yes	Yes	Apple	Yes.
Parke	Rosedale	T. O. Nevins	Yes	All	5-19	6-22	No	Some	Pear, apple, peach	Yes.
Perry	Rome	J. J. Wheeler	Yes	All	5-13	6-10	No	Not much		Yes.
Pike	Petersburg	J. D. Selby	Yes	All	5-10	6-20	Yes	Small trees	Apple	Yes.

Porter.....	Furnessville.....	L. G. Furness.....	No.....	All.....	5-15.....	6-15.....	Yes.....	.....	No difference.....	Yes.....
Posey.....	New Harmony.....	J. B. Elliott.....	Yes.....	All.....	5-16.....	6-25.....	Yes.....	.....	Apple.....	.....
Pulaski.....	Cloverdale.....	C. L. Bader.....	No.....	All.....	5-13.....	6-15.....	Yes.....	No.....	Apple.....	No.....
Putnam.....	Winchester.....	L. A. Stockwell.....	Yes.....	All.....	5-20.....	5-15.....	No.....	No.....	No difference.....	No.....
Randolph.....	Sunman.....	E. Sutherland.....	Yes.....	All.....	5-15.....	6-20.....	Not.....	No.....	Locust trees.....	No.....
Ripley.....	Rushville.....	T. O. Calman.....	Yes.....	All.....	5-1.....	6-10.....	Not.....	No.....	No difference.....	No.....
Rush.....	Scottsburg.....	L. B. Stewart.....	Yes.....	South.....	5-10.....	.....	Not.....	.....	.....	.....
Scott.....	Shelbyville.....	Henry Pond.....	Yes.....	North.....	.....	.....	.....	.....	.....	.....
Shelby.....	Hatfield.....	Smith Hazen.....	No.....	.....	.....	.....	.....	.....	.....	.....
Spencer.....	North Judson.....	Fred Garing.....	Yes.....	All.....	6-23.....	.....	.....	.....	.....	.....
Stark.....	South Bend.....	H. H. Swaim.....	Yes.....	All.....	5-15.....	6-15.....	Quite.....	Some.....	.....	No.....
St. Joseph.....	Angola.....	L. C. Smith.....	Yes.....	All.....	5-14.....	6-20.....	Yes.....	No.....	.....	No.....
Steuben.....	Farmersburg.....	R. Taylor.....	Yes.....	All.....	5-16.....	6-15.....	Yes.....	No.....	Apple.....	No.....
Sullivan.....	Vevay.....	J. R. Porter.....	Yes.....	All.....	.....	.....	.....	.....	Apple.....	No.....
Switzerland.....	Lafayette.....	S. W. Brady.....	Yes.....	All.....	.....	.....	.....	.....	.....	No.....
Tippecanoe.....	Tipton.....	Will Ryan.....	No.....	All.....	5-16.....	6-15.....	Yes.....	No.....	.....	No.....
Union.....	Liberty.....	H. F. McMahan.....	Yes.....	All.....	5-16.....	6-15.....	Yes.....	No.....	Apple.....	No.....
Vanderburgh.....	Evansville.....	J. C. Marquis.....	Yes.....	All.....	5-12.....	6-10.....	Yes.....	No.....	Apple, peach.....	No.....
Vermillion.....	Clinton.....	T. M. Morris.....	Yes.....	All.....	5-15.....	6-23.....	Yes.....	No.....	.....	No.....
Vigo.....	St. Mary's.....	T. J. Ward.....	Yes.....	All.....	5-25.....	6-20.....	Not.....	Yes.....	Apple, peach.....	No.....
Wabash.....	Laketon.....	G. N. Moyer.....	Yes.....	West.....	5-20.....	6-20.....	Not.....	No.....	Apple, pear.....	No.....
Warren.....	Marshfield.....	N. W. Slater.....	Yes.....	All.....	5-15.....	6-5.....	Not.....	No.....	.....	No.....
Warrick.....	Boonville.....	C. C. Ferguson.....	Yes.....	All.....	5-18.....	.....	.....	No.....	.....	No.....
Washington.....	Salem.....	E. E. Hancock.....	Yes.....	All.....	5-23.....	6-14.....	Quite.....	Some.....	Near timber.....	No.....
Wayne.....	Richmond.....	W. S. Rathiff.....	Yes.....	All.....	5-20.....	6-20.....	Yes.....	No.....	.....	No.....
Wells.....	Bluffton.....	E. L. Chalfaut.....	Yes.....	North half.....	6-2.....	6-30.....	Yes.....	No.....	Yes.....	No.....
White.....	Headlee.....	D. C. Teeter.....	Yes.....	South half.....	5-25.....	6-20.....	Not.....	No.....	.....	No.....
Whitley.....	Columbia City.....	G. R. Knisley.....	Yes.....	Few.....	.....	.....	.....	No.....	.....	No.....

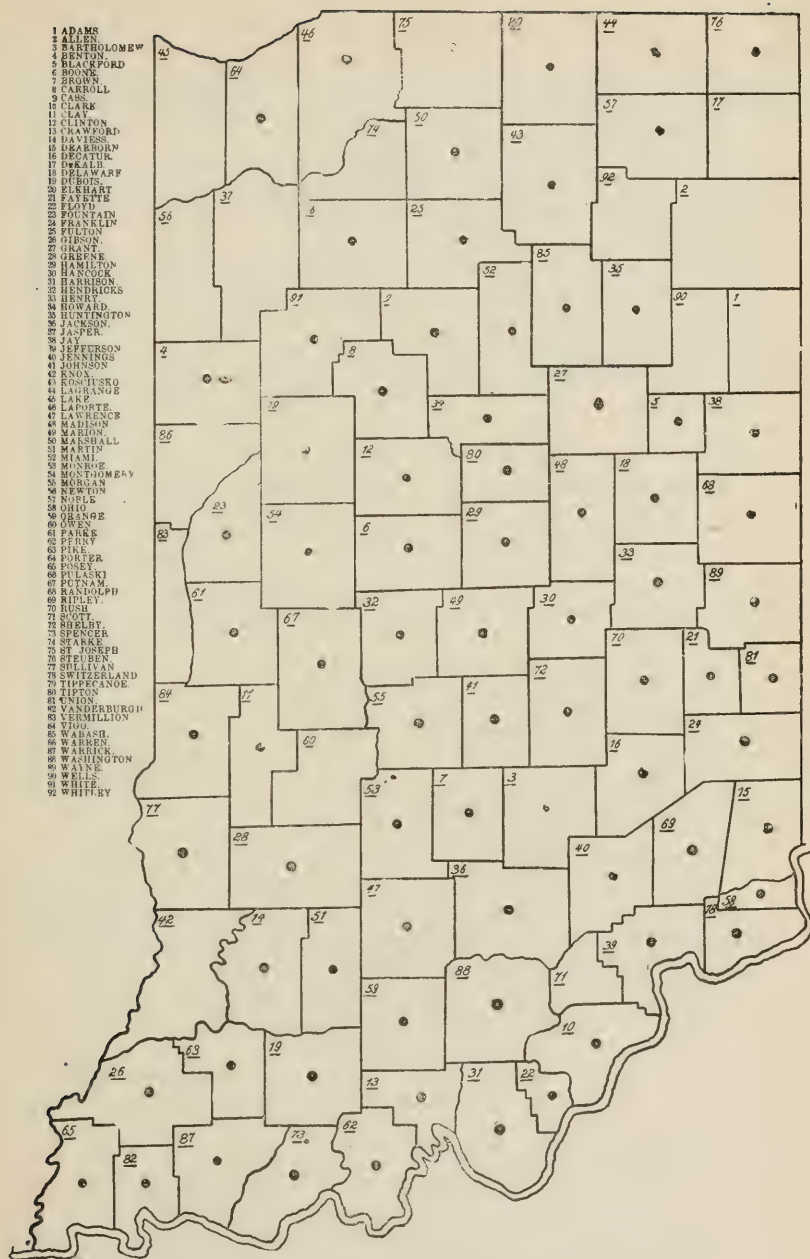
THE HESSIAN FLY.

CECIDOMYIA DESTRUCTOR Say.

Owing to the fact that but little has been heard of the Hessian fly during the past season, many have supposed that farmers would not suffer from that cause during the coming year. But numerous letters were received during October and November, stating that the fly was doing much damage to wheat in certain sections of Indiana. These letters were principally from farmers living in the south-central portion of the State.

In order to ascertain as accurately as possible what portions of the State were infested, a circular letter was sent out to over 300 prominent farmers, representing every county in the State, asking for information as to the following data: Presence of the fly, extent of damage being done, date when they were first observed, date of sowing, its presence in late-sown wheat, variety of wheat grown, the use of commercial fertilizers.

Responses have been received from 190 correspondents representing ninety-one counties. Of these, seventy-seven counties report the fly as doing more or less damage. Fourteen counties report no fly, which may or may not be true, as it has frequently happened that one man has reported no fly and another man living in another section of the county has reported it as doing considerable damage. Those counties reporting no fly are Lake, Allen, Dekalb, Whitley, Jasper, Newton, Adams, Warren, Vermillion, Owen, Wells, Knox, Starke and Scott. Bartholomew did not report at all. Fifty counties report the damage to wheat as ranging from fifteen to seventy-five per cent. of the crop. Twenty-four counties report only slight damage; and some did not report the amount of damage. The greatest amount of damage is reported from central and southern counties (in Decatur County fifty-two larvae were found in one plant). In sixty-nine counties in which the fly is found, the wheat was sowed before September 25, while in eight counties it is found in wheat sown after September 25, but in only one after October 1. Twenty-seven varieties of wheat are mentioned as being grown in the infested districts, and no one variety is mentioned as being more free from attacks than others. The varieties which are mostly grown are Fultz, Poole, Nigger, Rudy, Harvest King, Red Russian and Mediterranean. Nor does commercial fertilizer seem to lessen the attacks of the fly, although it may appear later that the fertilized fields are in better condition to withstand the attacks of the fly. Of the whole number reporting the fly, sixty-eight report the use of commercial fertilizer. It will be seen that the fly is widely distributed, and in the majority of cases the injury was done to wheat that was sowed before September 25. In fact it may be said that



Map showing counties infested with the Hessian fly in 1902 (fall).

the injury done to wheat sown after that date is very slight indeed, and probably in most cases would not be noticed were it not known that the fly was in the neighboring fields.

In view of the above facts it would seem but reasonable to suppose that, unless some unforeseen condition arises before the spring brood develops, the wheat crop in Indiana for 1903 will be cut short to a very considerable extent.

A newspaper bulletin containing the above facts has been sent to all newspapers in the State, and other information has been given whenever opportunity offered.

The accompanying map shows the distribution of the Hessian fly by counties. Those counties containing the large black dot are the ones reporting the fly.

FINANCIAL STATEMENT FOR YEAR ENDING OCTOBER 31, 1902.

RECEIPTS.

Amount received from State Treasurer on vouchers submitted to	
State Auditor	\$998 75

EXPENDITURES.

Traveling expenses, including hotel bills and livery hire.	\$290 48
Postage, express, telegrams	15 47
Stationery and printing	19 05
Per diem of self and assistants.....	673 75
	<hr/>
Total expenditures	998 75

I also append a list of Indiana nurserymen, whose premises were inspected in 1902, together with postoffice address, and the location of nursery and amount of stock under cultivation.

Respectfully submitted,

J. TROOP,

State Entomologist.

LIST OF INDIANA NURSERYMEN INSPECTED IN 1902, WITH NAME AND POST-OFFICE ADDRESS, TOGETHER WITH AMOUNT OF STOCK UNDER CULTIVATION.

J. TROOP, STATE ENTOMOLOGIST.

- Adams, Ira E., Linton, Greene County. Location, one and one-half miles north of city. Peach only.
- Albertson & Hobbs, Bridgeport, Marion County. Location, one-half mile west of Bridgeport. Three hundred acres in nursery stock.
- Alexander, J. B., Hartford City, Blackford County. Location, southwest part of city. Dealer.
- Alstott & Son, J. M., Sunshine, Harrison County. Location, one and one-half mile southeast. Four acres.
- Back & Son, Henry, Witt, Dearborn County.
- Baldwin, T. A., Oxford, Benton County. Mostly small fruits.
- Bennett, W. C., Scotland, Greene County. Location, four miles south of Kolean. One hundred acres in trees, two acres in small fruits.
- Bennett, A. S., Lafayette, Tippecanoe County. Location, near city limits, southeast. Twenty acres.
- Bennett, W. S., Carlisle, Sullivan County. Seven acres nursery stock.
- Bennett, S. D., Kolean, Greene County. Location, two and one-half miles southwest. Two acres nursery and one acre small fruits.
- Beuoy, Ran, Matthews, Grant County. Location, one mile west. One acre small fruits.
- Best, John M., Kingman, Fountain County. Small stock.
- Bird & Son, John, Raysville, Henry County. Location, north side of town. Railroad station, Knightstown. Ten acres nursery.
- Baunames, George, Milltown, Crawford County. Small stock.
- Bowman, M. M., Wall, Jay County. Small fruits.
- Bradley, C. P., South Bend, St. Joseph County. Location, three and one-half miles southeast. Twelve acres small fruits. Dealer.
- Bremen Nursery Co., Bremen, Marshall County. Location, just outside of town. Eight acres fruit, shade and ornamental.
- Bridges, John M., Dugger, Sullivan County. Location, one mile east and two miles south of Bloomfield. Fifty acres in nursery.
- Broshears, Porter, Boonville, Warrick County. Location, one-half mile south. Five acres.
- Browne, Mercer, Spiceland, Henry County. Location, one mile south of Spiceland and one-half mile north of Dunreith. Ten acres in nursery and five in small fruits.
- Brown, Walter, Connorsville, Fayette County. Location, near town. Five acres catalpas.

- Brownstown Nursery Co., Brownstown, Jackson County. Four acres.
- Bundy, W. P., Dunreith, Henry County. Location, one-fourth mile north of town. Twenty acres nursery, two acres small fruits.
- Burch, James M., Stanford, Monroe County. Two and one-half acres.
- Burgess, J. S., Depauw, Harrison County. Location, three miles south.
- Burkhart & Son, H. A., Southport, Marion County. Location, three miles south of Indianapolis. Three acres nursery and fifteen acres small fruits.
- Card, John W., Greenfield, Hancock County. Small stock.
- Catheart, Alva Y., Bristol, Elkhart County. Location, near town. Ten acres in small fruits. Dealer.
- Caylor, John, Ridgeville, Randolph County. Location, eastern limits of city. Five acres tree fruits and shade trees.
- Cochran, L. B., Greensburg, Decatur County. Location, north side of town. Five acres trees, one and one-half acres small fruits.
- Cockrum & Son, W. M., Oakland City, Gibson County. Location, near city. Two acres nursery stock.
- Cook, J. L., Warsaw, Kosciusko County. Seven acres small fruits.
- Cosby, L. C., Washington, Daviess County. Location, two miles south-east. Five acres stock.
- Cunningham & Son, J. H., Sugar Branch, Switzerland County. Ten acres of stock.
- David, Samson, Nashville, Brown County. Location, seven miles north of Freetown. One acre.
- Dean, Hiram P., Greenwood, Johnson County. Location, adjoining town. Ten acres in nursery.
- Dickey & Garrett, Doans, Greene County. Location, near town. Ten acres in nursery stock.
- Dixon, C. S., Bloomfield, Greene County. Location, one mile south of town. Two and one-half acres small fruits.
- Dreyer, J. F., Frankfort, Clinton County. Location, in suburbs. Four acres, mostly small fruits.
- Eickhoff, Ed. A., Gallaudet, Marion County. Location, six miles southeast of Indianapolis. Four acres nursery, three acres small fruits. Ten acres in nursery.
- Eickhoff, H. C., Julietta, Marion County. Location, four miles southeast of Indianapolis. Ten acres.
- Engles, O., Walton, Cass County. Location, near town. Small fruits. Dealer.
- Erwin, E. E., Underwood, Scott County. Location, near town.
- Fairview Nursery Co., Clinton, Vermillion County. Location, three miles northwest. Small stock.
- Fordyce, O. P., Salem, Washington County. Location, south of town. One acre in nursery.

- Fullhart & Co., Willard, R. F. D. No. 3, Muncie, Delaware County. Location, four and one-half miles southeast. Eight acres in tree and four acres in small fruits.
- Furnes & Co., T. Chalmers, Sheridan, Hamilton County. Five acres. seeds and ornamentals.
- Gaar, W. H. E., Germantown, Wayne County. Location, residence in town, nursery one and one-half miles southeast. Five acres in nursery and three in small fruits.
- Garber, D. M., Pierceton, R. R. No. 1, Kosciusko County. Small fruits.
- Gehler, Albert, Laketon, Wabash County. Three acres nursery stock, Near town.
- Goss, David M., Goss's Mills, Jackson County. Location, six miles south of Freetown. One acre.
- Goss, John, Rockville, Parke County. Small stock.
- Graham, Charles F., New Albany, Floyd County. Location, two and one-half miles northeast of city. Three acres in nursery.
- Graham, J. K., New Albany, Floyd County. Location, resides in city; nursery three miles north. Two acres in nursery.
- Grant, F. M., Lafountain, Wabash County. Location, east side of town. Dealer.
- Gregg, Warren C., Pennville, Jay County. Location, one mile northwest. Eight acres trees and four acres small fruits.
- Grossman, J. C., Wolcottville, Lagrange County. Location, three miles northwest. Two acres small fruits. Dealer.
- Gustin, E. R., Peru, Miami County. Dealer.
- Hand, H. M., Argos, Marshall County. Location, three miles northwest. One acre small fruits.
- Harnish, George, Bluffton, Wells County. Location of nursery, five miles northwest. Resides in town. One and one-half acres nursery, fifty-five acres orchard.
- Hazen, Smith, Hatfield, Spencer County. Location, one mile south. Four acres in nursery stock.
- Heacock, E. E., Salem, Washington County. Location, four miles northwest of town. One acre in trees.
- Heacock, J. W., Canton, Washington County. Location, one-fourth mile north of Canton. One-half acre in nursery.
- Heim, Alwin L., Chandler, Warrick County. Location, five miles west. Six acres in nursery.
- Henby & Son, J. K., Greenfield, Hancock County. Location, one mile west. Fifty acres in nursery, fifteen acres in small fruits.
- Henry, H. W., Laporte, Laporte County. Location, one mile northwest of Laporte. Twenty-seven acres of small fruits and five acres of fruit and ornamental trees.
- Hill & Co., E. G., Richmond, Wayne County. Location, one-half mile east. Florists. Two acres in plants and twenty greenhouses.

- Hoagland, George T., Portland, Jay County. Location, five miles north of Redkey. Seven acres small fruit. Dealer.
- Holland, William, Plymouth, Marshall County. Location, two and one-half miles southwest. Twenty acres trees, one acre small fruits.
- Holmes, John W., Wallen, Allen County. Location, five miles southeast of Hometown, four miles northwest of Wallen. One acre apples and pears. Dealer.
- Hook, L. C., Albany, Delaware County. Small stock.
- Hoopes, John W., Redkey, Jay County. Small fruits.
- Hughel & Son, A., Anderson, Madison County. Location, one mile east. Ten acres in trees and five acres small fruits.
- Irvin, William A., Vincennes, Knox County. Ten acres small fruits and trees.
- Jarret, J. A., Montpelier, Blackford County. Location, two and one-half miles north. Five acres fruit and shade.
- Jeffries, E. T., Boonville, Warrick County. Location, five miles southwest. Three acres.
- Kelly, Samuel, Alert, Decatur County. Location, north end of town. Four acres.
- Kepler, S. W., Pulaski, Pulaski County. Location, five miles southwest of Pulaski. Three acres.
- King, W. E., Scotland, Greene County. Location, five miles south of Kolen. Five acres nursery stock.
- Knaub, Ben, North Vernon, Jennings County. Location, five and one-half miles northeast. One acre.
- Korner, Joseph, Star City, Pulaski County. Location, two and one-half miles west of town. Four acres small fruits. Dealer.
- Kuebler, Theodore D., Evansville, R. R. No. 3, Vanderburgh County. Five acres nursery stock.
- La Hane, William, Chesterton, Porter County. Location, suburbs of the town. Five acres small fruit. Dealer.
- Lenfesty & Atkinson, Marion, Grant County. Shade trees.
- Lucas, John W., Bloomfield, Greene County. Location, four miles east of town. Six acres trees, one acre raspberries.
- Lutes, O., Portland, Jay County. Small stock.
- McClaren, Charles, Sunshine, Harrison County. Location, one-fourth mile southwest. Four acres.
- McCoy, J. E., Bourbon, Marshall County. Location, one-half mile south. One acre apples and pears, ten acres small fruits. Dealer.
- McElldery, W. E., Boonville, Warrick County. Location, in town and one-half mile south. Six acres in nursery.
- McGinnis, D. A., R. F. D. No. 1, Andrews, Huntington County. Location, ten miles south and two west of Andrews. Small fruit.
- McIntosh, George W., Rego, Orange County. Location, one-half mile southwest. One-half acre.

- Martindale & Hostetter. Doans, Greene County. Location, near town. Twelve acres in nursery stock.
- Mason, B. F., Martinsville, Morgan County. Location, seven miles south. Five acres; also ten acres of stock near Martinsville, Ind.
- Melton, J. F., Amboy, Miami County. Location, in town. Two acres small fruits. Dealer.
- Mercer, T. J., Dillman, Wells County. Location, seven miles south of Warren. One acre of nursery stock.
- Meredith & Son, Koleen, Greene County. Location, two and one-half miles southeast. Forty acres in nursery stock; one acre small fruits.
- Miller, Thad, Tulip, Greene County. Small stock.
- Milhouse, Jesse G., Ezra, Jennings County. Location, four and one-half miles southeast of Butlerville. Two acres.
- Milhouse, Frank, Hyde, Jennings County. Location, five miles southeast of Butlerville and one and one-half miles east of Hyde. Three acres nursery.
- Minnick, Henry, Converse, Miami County. Location, three and one-half miles northeast. Three acres apples, cherries and pears.
- Moore, C. B., Monticello, White County. Location, two miles west of Monticello. Two acres.
- Morris, Thomas M., Clinton, Vermillion County. Small stock. Dealer.
- Moyer, G. N., Laketon, Wabash County. Location, one and one-half miles south. Forty-five acres nursery stock, thirty acres of fruit.
- Morris, Thomas B., Richmond, Wayne County. Location, one mile east. Four acres nursery and one-half acre small fruits.
- Morrison, O. A. J., Middle Fork, Clinton County. Location, six miles south of Michigantown. Carolina poplars. Dealer.
- Morton, William H., Galena, Floyd County. Small stock.
- Osborn, Adam, Bloomfield, Greene County. Location, three miles north. One acre in trees.
- Patterson, P. T., Bloomfield, Greene County. Location, one mile south of town. Two acres in trees and three in small fruits.
- Paxson & Son, George, Pennville, Jay County. Location, three miles northwest. Two acres tree fruits, one-half acre small fruits.
- Peffley, T. J., Dora, Wabash County. Twenty acres small fruits and sixty acres in orchard.
- Pennington, Mary, Vernon, Jennings County. Location, one and one-half miles southwest. Two acres, mostly small fruits.
- Perry, Alex., McCutcheonville, Vanderburgh County. Small stock.
- Phelps, William, Noblesville, Hamilton County. Location, two miles southeast. Five acres trees, ten acres small fruits.
- Phillips Bros., Hobbieville, Greene County. Location, one-half mile north. Twenty-eight acres in tree fruits.
- Polk, W. R., Tobinsport, Perry County. Location, one-half mile west. Small stock.

- Potter, E., Redkey, Jay County. Location, five and one-half miles north.
Two acres small fruits.
- Preble, A. C., Marion, Grant County. Location, 212 South Adams street.
One acre in nursery stock. Dealer.
- Ragle, Amos, Elnora, Daviess County. Location, south side of Elnora.
Twenty-five acres trees, four acres small fruits.
- Randolph Bros., Lafayette, Tippecanoe County. Location, three miles southeast. Fifty acres.
- Reed Nursery Co., Harrell, Jefferson County. Location, two and one-half miles southeast of Harrell. Five acres in nursery.
- Reed, W. C., Vincennes, Knox County. Location, four miles southeast.
Fifty acres nursery stock. Twenty-five acres small fruits.
- Rogers, Hugh, Knox, Starke County. Location, one mile south. Three acres small fruits. Dealer.
- Rogers, R. S., Bloomfield, Greene County. Location, two miles northwest of town. Three acres small fruits.
- Roth, Daniel, Boonville, Warrick County. Small stock.
- Scott, Charles H., Winamac, Pulaski County. Location, one and one-half miles southeast of town. One acre trees, fruits and ornamentals.
- Sanders, Mrs. Jane, Westville, Hamilton County. Small stock.
- Semon, H. C., Benville, Jennings County. Location, one and one-half miles east in Ripley County. One and one-half acres stock.
- Sharp, G. H., Linton, Greene County. Small stock.
- Simpson & Sons, H. M., Vincennes, Knox County. Location, two miles east. Fifty acres in nursery stock. Twenty-five acres small fruits.
- Sleeper Bros., Fowler, Benton County. Four acres.
- Smith, W. F., Battleground, Tippecanoe County. Five acres near town.
- Smith, Al. B., Garfield, Montgomery County. Location, five miles northeast of Crawfordsville. Two acres small fruits.
- Smith, W. H., Medaryville, Pulaski County. Dealer.
- Smith, W. T., Grandview, Spencer County. Location, near town. Six miles from Rockport. One-half acre.
- Snoddy Nursery Co., Lafayette, Tippecanoe County. Dealers.
- Snoke, J. W., South Bend, St. Joseph County. Location, in town. Dealer.
- Stacey, W. E., Lyons, Greene County. Location, nursery two miles north.
Six acres nursery, one of small fruits.
- Stineman, Jonas, Wawpecong, Miami County. Location, six miles east of Bennetts. Dealer.
- Stinger, B. F., Charlottesville, Hancock County. Location, residence in town; one and one-half miles north. Strawberry plants only.
- Stout, W. C., Monrovia, Morgan County. Location, six miles from town.
- Swaim, H. H., South Bend, St. Joseph County. Location, three miles southwest. Six acres small fruits. Dealer.
- Teas, E. Y., Centreville, Wayne County. Location, three miles northeast.
One and one-half acres, mostly ornamentals.

- Terrell, W. T., Bloomfield, Greene County. Location, one-half mile north of town. Thirty acres in trees and two acres small fruits.
- Trook, John N., Converse, Miami County. Location, in town. Dealer and jobber.
- Truex, G. W., Lockman, Brown County. Location, seven miles north of Freetown. One acre.
- Vernia, Mrs. Elizabeth, New Albany, Floyd County. Location, three miles southwest of city. Two acres in nursery.
- Wabash Valley Nursery Co. (J. B. Evans), Bluffton, Wells County. Location, adjoining the town on west. Thirty acres mixed stock.
- Walker & Son, F., New Albany, Floyd County. Location, two miles northeast. Five acres in nursery.
- Ward, J. O., Huntington, Huntington County. Location, edge of city. Two acres of trees.
- Ward, T. J., St. Marys, Vigo County. Location, two and one-half miles northeast of St. Marys and six miles northwest of Terre Haute. Ten acres of nursery and twenty-five in orchard.
- Warren, D., Nora, Marion County. Lives near Carmel.
- Wason, Charles, Westfield, Hamilton County. Location, two miles east. One and one-half acres Carolina poplars, one acre small fruit.
- White, Harry, New Holland, Wabash County. Location, ten miles southeast of Wabash. Eight acres small fruits. Florist and dealer.
- Wickinzer, James M., Plymouth, Marshall County. Location, two miles south. Eight acres small fruits. Dealer.
- Williams, John J., Warren, Huntington County. Location, near town. Dealer.
- Wilson, J. M., North Judson, Starke County. Location, near town. Small fruits.
- Winchell, G. W., Tobinsport, Perry County. Location, west of W. R. Polk. Small stock.
- Witwer, J. B., South Bend, St. Joseph County. Location, one mile east. One acre tree fruits and ornamentals.
- Wright Nursery Co., J. M. T., Portland, Jay County. Resides one mile west. Thirty-eight acres fruits and shade trees.
- Young, George C., Greensburg, Decatur County. Location, one mile southeast. One acre nursery and one acre small fruits.

REPORT ON EXPERIMENTAL ORCHARD.

BY JOE A. BURTON.

The orchard, as a whole, has made fair growth. Several trees have died from root-rot and some from depredations of groundhogs. The growth of the seedlings is very irregular. Some grow very fine and seem in every way healthy. Some grow very slow. Some seem almost killed by mildew. So far as producing valuable new varieties is concerned, I think many had as well be grubbed out now. But as we have no precedence to grow by, it seems preferable to let them grow. One hundred and twenty selected trees were taken by L. P. Motsinger to grow in a private orchard. No doubt the Committee of Control would gladly give out trees to other responsible parties for private use. It is a relief, so far, for the Experimental Orchard.

Only about sixty of the 1,000 pedigreed seeds planted in the fall of 1901 grew. The failure to grow was probably due to the impacting of the clay over the seeds. The seeds planted were

Rome Beauty, pollenized by Ben Davis.
Rome Beauty, pollenized by Grimes.
Ben Davis, pollenized by Rome Beauty.
Ben Davis, pollenized by Grimes.
Winesap, pollenized by Rome Beauty.
Winesap, pollenized by Grimes.
Winesap, pollenized by Ben Davis.
Grimes, pollenized by Benoni.
Grimes, pollenized by Inbred.
Benoni, pollenized by Early Harvest.
Benoni, pollenized by Chenango.
Benoni, pollenized by Trenton Early.
Benoni, pollenized by —.
Benoni, pollenized by Yellow Transparent.
Yellow Transparent, pollenized by Benoni.

This year we have about 1,000 pedigreed seeds. We expect to cover them with coarse sand. Our private orchard has been freed from all undesirable varieties, so any crops that may be made naturally will be good crops. Therefore, we will plant freely from this orchard in the future.

By direction of the committee, some very important experiments, in addition to what were already under way, have been commenced. One

to determine whether the custom of nurserymen, to propagate from nursery stock, mitigates against the bearing qualities of the tree. Another, to determine whether trees propagated from water sprouts are inferior to those propagated from bearing wood of same tree.

On this line we insert a clipping from the pen of R. M. Kellogg, of Michigan.

PROPAGATING FROM BEARING TREES.

"To the Farmers' Review: The editor of the Review desires reasons why nurserymen should propagate only from bearing trees of known fruiting ability. A careful study of a bud will show that the objection to



Apple—9½ inches in circumference. Variety--Yellow, Transparent. Grown on wild crab tree.
No Transparent leaves. Apple, Yellow Transparent in every respect.

propagating through a long series of years from young and untested buds from nursery rows is well founded. A bud contains the life germ and a perfect embryo tree possessing the same vascular system of the tree or plant upon which it grows, and before modern investigation proved the

contrary it was thought no variation ever took place. But we now know that a tree changes its organism and becomes weak in some parts and strong in other parts, and that when these changes are effected they are as permanent as any of its characteristics.

"When a tree becomes unfruitful, its fruit producing or seed organism is weak in its buds, and the tree growing out of these buds will possess these weaknesses, as repeated experiments have shown. Take buds from a well developed and very fruitful tree and another from the nursery row, where it has been propagated through a dozen or more years from the young nonbearing wood. In the first case you will see a marked difference in the wood growth. The tree will not look so smooth and straight as the other, but under good treatment it will come into bearing much earlier and be more fruitful afterwards. The second tree will grow smooth and straight and look much nicer, but its growth will be wood until late in its life or until something is done to bring it into bearing. Many nurserymen have experimented and proven the correctness of the principle, but people want cheap, large, straight, smooth-barked trees and insist on having them, and are so grounded in prejudice that sales can not be effected at a price which will justify the additional expense of maintaining an orchard under conditions to furnish the well-developed grafts.

"So long as the man who furnishes the big, smooth tree at the smallest price gets the order there is no inducement to make the change. The change, however, is coming, and in the not distant future every nurseryman will have to give evidence that his trees are not all wood, but that they have a fruit-producing organism developed in them, so we shall not have to wait ten years longer than necessary in order that we may get returns for labor and care. Next week we will point out some specific instances of such changes.

If he is correct, we are certainly on the downward road. Why these experiments have not been inaugurated by the experiment stations years ago is a mystery.

The first question put to nature by the Experimental Orchard has been answered—"Does the stock have an influence on the nature of fruit on the graft?" The answer is, "No."

A Yellow Transparent was grown on a wild crab. The apple was grown with sap supplied and digested by the leaves of the crab; all its own leaves removed. The apple was in every way a Yellow Transparent. As this was the first apple ever grown purely for scientific purposes, of which we have any account, we present a photo of the apple; also the limb on which it grew.

The orchard received its first public recognition and celebration on September 10th. The Monroe County Horticultural Society had planned, in their annual program, to visit the orchard for their September meeting. Afterward they invited the Salem Farmers' Club to meet with

them. All seemed to enjoy the meeting, and manifested much interest in the work being done. Let others follow their example.

President Stevens: I believe this is the last of the reports. We will now take the subject "Forestry," by Mr. Freeman, Secretary State Board of Forestry.

FORESTRY IN ITS RELATION TO FRUIT GROWING.

BY W. H. FREEMAN, SECRETARY STATE BOARD OF FORESTRY.

Mr. Chairman, Ladies and Gentlemen—I come before you not well prepared today, as I have postponed preparing a paper longer than I should have done. I have been rather covered up with work lately, and was unable to prepare a formal paper.

To discuss the subject of forestry with relation to fruit growing is a rather difficult task. As far as forestry and horticulture are concerned, within themselves, they are entirely separate institutions. Forestry deals with the propagation of forests; horticulture with the growing of fruit; but there may be good relations existing between the two, rightly pursued, of which you all know perhaps as much as I do, if you have studied it. As far as definite relations are concerned, we will say there exists none; so far as possible relations, there may exist many, primarily the protective feature. Forests that protect orchards are of great benefit to horticulture. When I am traveling through the State, I always observe the orchards. I see there many conditions I am unable to account for. If any members here present are able to account for them, I shall be very glad to hear from such members. I find orchards, old and young, in a state of decay. It is seldom that I find a No. 1, thrifty, growing orchard, an orchard that does not have a great many defects. There may be many causes for this. I would attribute part of them to climate effects, both cold and rain. You are aware of the fact that climatic conditions in Indiana have changed in recent years. In 1886 the extremes of climate were 124 and 21; in 1896 they were 121 and 22. That is quite a variation in the extremes in ten years. It may be that the absence of forests in the way of protection is showing itself upon our orchards, in killing the trees. If that is the case, and forests will protect the orchards of the State and prevent this killing of the trees, they are a good thing for the fruit grower.

This brings us to the question of moisture. It is a false idea that you can plant forests and produce rain. That is not so. If it were so, we could plant forests upon the arid wastes of the West and produce rain there. There is this about it, however, that forests will protect

the moisture that does fall and conserve it. The foliage prevents the sun and wind from drying up the moisture too rapidly. If that is the case, and our orchards are dying because of the lack of moisture, we can protect them in that way. I, myself, on our own home farm, observed that the orchard, which contained 100 fine trees when we purchased it, has now but two trees standing. Since we purchased it, the forests have been removed. On my last visit to that farm, there were but two trees standing, and they were not sound. I am led to believe that the destruction of that orchard was caused by climatic effects. As forestry advances, we hope to develop something along the line of protecting the fruit trees.

Another thing is insects. I believe that I am safe in making the assertion that the insect ravages of the fruit are greater than they were ten years ago, and if my observation serves me right, orchards that are farthest removed from forests, are the worst infected. I don't say that you can plant forests around orchards and prevent the ravages of insects, but if there is anything in the saying "that birds will congregate most where forest trees are, and that the birds devour the insects," then I can see where forests will be a benefit to fruit growers. Professor Mason B. Thomas says:

"Some interesting and striking facts are discovered from an examination of our fruit crop in connection with the deforestation of our lands. The discoveries are certainly suggestive of a very close relation between the two.

"In 1880, in the eleven counties producing the largest yield of apples, were as follows

<i>Counties.</i>	<i>Bushels of Apples.</i>	<i>Acres of Forests.</i>
Allen	1,007,576	108,132
Crawford	608,043	50,005
Harrison	610,500	81,807
Kosciusko	602,462	52,275
Laporte	617,353	33,457
Ripley	650,735	69,183
St. Joseph	780,243	43,958
Steuben	655,843	47,973
Sullivan	1,059,149	46,867
Washington	888,421	80,852
Wayne	607,377	47,265

"Several of these counties are among the most heavily wooded of any in the State, and, with the possible exception of Laporte, they all contain a very large acreage of forest. The history of the apple crops in connection with the history of the removal of the timber in these counties helps to substantiate our claim for their importance. In 1897 these counties made the following showing:

<i>Counties.</i>	<i>Bushels of Apples.</i>	<i>Acres of Forests.</i>
Allen	6,170	29,876
Crawford	9,894	22,374
Harrison	57,241	40,125
Kosciusko	721	24,052
Laporte	1,304	17,490
Ripley	7,630	27,079
St. Joseph	980	9,463
Steuben	432	1,746
Sullivan	13,123	9,718
Washington	8,202	42,381
Wayne	3,863	7,718

"From these figures it appears that the counties now exhibiting the largest falling off in their apple crops show nearly corresponding reduction in their forest areas (Allen, Sullivan, Steuben, Kosciusko, St. Joseph). Similar conditions are not found all over the State, but it is certainly suggestive that those counties that formerly produced the largest apple crops and have suffered most from deforestation have fallen to the end of the list in their yield of apples (Steuben, Sullivan, St. Joseph, Allen), and the importance of the forest becomes the more significant when we discover that of the counties formerly producing the largest crops those have fallen off the least that have removed the smallest amount of timber (Crawford, Harrison, Laporte, Ripley, Washington)."

You can not remember all these statistics, but the report goes on to show that as forests decreased in acreage the apple crop likewise decreased in production. Mr. Thomas is a man who conducts and has charge of the chair of forestry in Wabash College, and has spent ten years of his time in close observation, and gives the above as the result.

As forestry proceeds, and we have reasonable assurance that it will proceed, we hope that the relations will become stronger because of the demonstration which will take place both in tree growing and in soil relation to trees. Forestry is yet in its infancy. When it becomes thoroughly established—which I believe it will—then it will become like the experimental stations in agriculture, as to soil investigation and tree growing. Along with that will come the various studies and experiments in dealing with insects and spraying. New York State is probably making the most progress of any State in the Union in dealing with insects, although the United States Bureau is doing a great deal of work, and if any one of you will write to William F. Fox, the State Forester, Albany, N. Y., who has just recently issued a publication on the insects that attack maples, and their remedies, you will get a very interesting publication. Indiana has suffered greatly the past year from maple insects and maple borers; indeed, our State has suffered more than any

Western State. I think upon the State House grounds there are some twenty-five or twenty-eight of the maple trees that have been killed this past summer by the borers. It is almost impossible to prevent that insect from destroying the trees—or it was found so this year—because it is an entirely new attack. But upon investigation you will find streaks of black bark around the tree or up the side. By removing that you will find that the borer has bored inside. A tree that seems alive one day, in a few days will be wilted and dead. There is only one remedy for the borers. If you will take a gallon of soft soap and a gallon of warm water and stir in it a pound of crude carbolic acid or a half pound of refined carbolic acid, then dilute with eight gallons of water and let stand over night, you can destroy the borers by spraying your tree bodies with a strong spray about the last of May or the first of June. Spray as strongly as you can, so as to drive the mixture into every crevice, and you will probably destroy the little larvae.

Fruit growing in Indiana should be greater than it is. The State Board of Forestry intends to recommend the growing of timber on the waste, barren lands of the State. That is to be the policy of the board for the future, to reforest the broken, waste lands of the State, of which there only lacks a little of being 700,000 acres. Instead of adopting the plan of the Eastern States of purchasing all of the waste land in the State and of foresting it at the State's expense, the board proposes that the State establish a reservation of 2,000 acres, to be located in those counties which will best demonstrate forest growing. They must prove to the State that it is a profitable investment, and then leave the matter to the citizens and the investments of the State. This waste land should be No. 1 fruit growing land. Perhaps most of you know as much about that as I do, and maybe more. Why isn't that waste land in Indiana No. 1 fruit growing land? If it is, and it can be purchased at from three to eight dollars an acre, why is it not a profitable investment? I find this difficulty, however. This waste, broken land is not suited to the retention of moisture, and wherever the forests have been removed the land is practically worthless; it produces nothing simply because of lack of moisture. It is bordering on the same state of affairs that exist in Austria. Several centuries ago Austria was one of the richest wooded countries in Europe. Those forests have all been removed. The removal has made these lands absolutely worthless; it has destroyed their fertility. In so far as forestry will demonstrate whether that is a fact or not, it ought to go hand in hand with fruit growing. I suggest to the members of this organization that they go hand in hand with the State Board of Forestry in the matter of experimenting with fruit growing on these lands. We ought to have in the State of Indiana a great commercial fruit growing interest, instead of having the growing of fruit confined to the small orchards on the farm for home consumption. Indiana is between the thirty-seventh and fortieth latitude, and that ought to make it suitable

for fruit growing. If it is a matter of protection, plant your fruit orchards and protect them, and the Board of Forestry will lend you all the encouragement it can.

I thank you for your interest in what I have said. If you have any questions to ask, I shall be very glad to answer them; but before I close I will say that last year a discussion came up here in regard to the catalpa. I have lost no time in investigating the catalpa thoroughly, and if the members of this association will send me their addresses I shall have sent to them the latest publication from the United States Bureau of Investigation of the catalpa. The publication has just been issued, and I think it will remove, at once, all questions as to the qualities of the catalpa.

Question: Would you renovate an old piece of woodland? In the woodland I refer to there are a few young trees of ash, hickory and maple. Can I plant some new timber in there? There are fourteen acres in the tract, which is in Madison County.

Mr. Freeman: Yes, you can plant that in either black locust or catalpa or Kentucky coffee tree. Plant 2,000 to 3,000 to the acre.

Question: In surrounding an orchard with forest trees, what kind of trees would you use, and would you plant on all sides of the orchard or on two sides only?

Mr. Freeman: That will have to be answered generally. That depends somewhat, of course, on circumstances. Our severe storms come from almost a definite direction. The majority of the plantings are on the north, south and west. I should say the west and southwest would be the preferable places. What you plant depends on whether you want a permanent grove or whether you wish to use the trees for posts. Locust, catalpa and coffee tree, and, mingled with them, oaks and elms and maples, make a good grove. In time you can cut the locusts and catalpas out, and leave the others for a permanent protection. You can use the ones you cut out for posts.

Question: Is the Kentucky coffee tree what we have been accustomed to calling the "coffee nut tree?"

Mr. Freeman: The same.

Question: Is that good for post timber?

Mr. Freeman: It is No. 1 in contact with the soil. I think it is the best timber you can find for posts. If you grow it and let it grow to suitable sizes for posts, which it will do in a short time, it is a No. 1 wood for both posts and ties.

Question: What about the honey locust?

Mr. Freeman: That is good for post timber, but I would not advise any one to grow it. It is too thorny and scraggly. It is unfit for growing on this account.

Mr. Hale, of Connecticut: I have been interested in this discussion of forestry in its relation to orchards, and know there are features in it of decided value. In a level country, unquestionably a large forest area reasonably near orchards is a decided benefit; also along the line of our streams for the retention of moisture and giving us a more continuous supply of moisture. Yet forests close to an orchard are sometimes injurious. They do harbor the birds that destroy the insects, but they also harbor insects, and I prefer an orchard somewhat removed from a forest. Yet unquestionably a well-balanced, symmetrical condition can not be maintained without a forest area. That seems to be well settled, and I think we have been in this country destroying our wood and timber with reckless prodigality, and if we do not have to replant some of our timber lands, our children will have to do so.

The speaker read some statistics about the falling off of the apple crop in this State in certain years. That interested me very much. I notice that the writer laid the falling off to the destruction of the forests. I think there is something wrong with that theory, especially as applied to some of the years given in the list. Take 1896, for instance, when we had the greatest apple crop of this country. Of course, the next year the trees were just taking a loafing spell, and the great falling off, shown for that year, was not on account of the destruction of the forests at all. The writer of the paper was thinking of the destruction of the forests, and didn't know anything about orchards. We get our minds on one thing, and are apt to forget other things. Nevertheless, I am in hearty sympathy with a plan for the conservation of the forests of this country and the replanting of tracts that have become waste.

James Little: In these meetings we should try to instruct the people, not from theory, but from our own experiences. We can read a great many things in books that do not work out in practice. Last year I talked about the catalpa. I learned from the people in the "Pocket." I was among them for weeks. I am a friend of the catalpa; I think it is a good tree. I think I have the oldest trees in central Indiana, and some of them are large enough to make sawlogs. A great deal has been said about the durability of timber. The catalpa was spoken of in this connection; also the mulberry, the locust, the coffee nut and others. I want to call your special attention to one variety of timber which, I am positive, has no equal in America for durability. I refer to the Osage orange. I have had Osage orange trees planted on my place for twenty-five to thirty

years, and I can show stakes that have been in the ground twenty years that are still perfectly sound. The Osage orange is easily grown. If you will plant the trees thick at the start, the trees will send the growth up and make nice fence posts. The Osage orange is not affected by any insect pests that I know of. It makes better posts than any other wood I know of; they are like steel. You can set them down deep enough in the ground to support a wire fence. There is a great deal of oil in this wood.

Mr. Zion: I believe I have a scheme to solve the forestry problem in the State of Indiana. I am glad to hear another friend here advocating it. I refer to the growing of Osage orange trees. In planting an orchard of fifty acres, I felt that to make it a success it should be protected, so I put in eighty rods of hedge fence on the east, making two rows. On the north I planted 160 rods; on the west, eighty rods more. Now I am going to give you my experience, which is all in line with the statistics given by Professor Freeman. In my orchard, this season, I had an abundance of apples. Farmers from the prairie country came to my orchard for apples; the farmers near timber did not have to buy apples; they had plenty in their own orchards. There is not an intelligent man in this State that has not arrived at the conclusion that something must be done to stop the vandalism that is destroying all our beautiful Indiana trees. I see the absolute necessity of this. I am satisfied that we never can get the people of the State of Indiana to plant trees and grow forests to take the place of those that were destroyed. That can not be done, and we are wasting our time when we talk of this farmer or that farmer planting forests. I have grown ten bushels of pears on a Keiffer pear tree thirteen years old and sold them for one dollar a bushel, and yet people will not plant Keiffer pears. Now a man that will not plant that kind of tree will not plant forest trees. The heaviest land owners we have in my part of the State are greedy for money, and they are destroying their beautiful groves. One man in my neighborhood destroyed a beautiful one that I would not have taken \$500 for. The price of stove wood has gone up, and I am afraid that will tempt many other farmers to like acts of vandalism.

The first thing to do in the way of helping us to protect the orchards of the State is to remove the law from the statute books that makes Indiana herself a great vandal in the destruction of forests. Last season, when my neighbors failed to have corn crops, I had forty bushels to the acre on my farm. People say it is ten degrees cooler while passing through my farm than through my neighbors', on account of the groves on my place. They also say it is warmer in the winter on account of the shelter afforded by the groves. It is not necessary to have trees a hundred feet high to give this effect. You can grow leaves on a hedge fence as well as on a large tree. I expect a great profit from my hedge

fences. In a few years I expect they will bring me a great many hundred dollars.

However, I was speaking of the law that should be removed from the statute books. I refer to the law that says you can not plant a hedge fence between your farm and your neighbor's farm, or, if you do, you must cut it down to five feet in height. I am in favor of having that law removed. We should have a better law than that in reference to partition fences. No better law can be put upon our statute books than to allow each man to plant his part of the line fence in a hedge if he wishes. If I have a line fence of 200 rods between my neighbor on the right and myself, I want to be allowed to plant my hundred rods of it with hedge fence if I wish. I have gone along the line and planted a hedge fence and stretched wires along this. Some people try to use the hedges for fences without anything else, and then say they are a failure because they will not keep the hogs and cattle in.

Then take the highways of the country. You will notice, if you travel about, that most of the hedge fences are being removed. If we can get a law passed that will allow a man to build his partition fences right to the line, think of the great Osage orange hedges that will soon spring up. And they will be found the most profitable thing you can plant on your farm. I calculate that in a period of fifteen years these hedge fences will pay me fifteen dollars an acre. The average farmer can not conceive of the expense posts will be in the future, and, as our brother has said, there is nothing like a hedge post. In twelve years I am going to have good, thick posts by planting the hedges in two rows, breaking joints. You can look at my hedges, and every two or three feet you will see a splendid post.

Mr. Henby: I see that some prominent professors in Ohio say the Osage orange hedge is the worst harbor for San Jose scale and other insects. They say the birds distribute the scale over the country from these hedges, and claim they are one of the main sources from which the insects are distributed. They do not confine their condemnation to English sparrows; they say all kinds of birds are distributing these insects.

Mr. Amos Garretson: Professor Freeman spoke of a solution with which to spray the maple trees for the borers. Would that spray be dangerous to use on the peach and apple trees?

Mr. Freeman: It will not hurt any tree. Of course, you need only spray the body of the tree. If you will send to the Department of Agriculture, Washington, D. C., they will send you a publication on insecticides and sprays. I would like to have a number of you give me your names for the publication I have mentioned.

The Osage orange is all right. It is as good a tree for posts as you can get; so is the catalpa, but that is not a question of forestry. We

have 747 factories in this State that are purchasing over eighty per cent. of their timber outside of the State, and sixty-three of them use second-growth hickory, oak and ash—not to exceed twenty years' growth. Over forty of them write me that they are going to remove from the State unless something is done to grow second growth ash, oak and hickory. That is the problem of forestry to many, to provide wood for our factories and to make the waste lands of the State profitable. The others I call side lines. Ornamental shade trees, post trees and such things are side lines. I do not particularly like Osage orange trees, and would not have them on my place unless I planted them on waste places for posts. How many of you know what distance from its trunk an Osage orange will absorb the moisture?

Mr. Zion: I know that is often brought up. I do not know how far it will absorb the moisture, but I do know that my neighbor says his wheat was better near this hedge last year, because it kept the moisture in the ground. I know it is not good for corn, but I grow splendid timothy right up to the hedge.

Mr. W. W. Stevens: Some seem to think it is a very profitable tree to grow. I should like to have you tell us how close they should be planted.

Mr. Freeman: Not more than five feet each way. That will give you over 2,000 trees to the acre. Planting them close prevents their branching, and they give you straight, long posts. The growth of the Osage orange, however, is not nearly so rapid as the catalpa.

Mr. Zion: In my locality, we would consider it a loss to plant them so far apart as that.

Mr. Freeman: You do not have them in considerable areas. In single rows you may plant them as close as sixteen inches. If you are going to plant an acre in a block, how far would you plant them apart?

Mr. Zion: In rows four feet apart and eight inches in the rows, and cultivate them for two years.

Mr. Little: While I think it is very profitable to plant trees to raise posts, I doubt very much whether it would be profitable for a man to give a large portion of his land to it.

Mr. J. A. Burton: We have a very important program for tomorrow, and that all may be heard from, I move that the President appoint a timekeeper for tomorrow, and that each member be limited to a discussion of three minutes on each subject.

The motion was seconded and carried.

President Stevens appointed the following committees:

23—Board of A.

On Resolutions—James Troop, C. A. Howland and Mrs. R. H. Newman.

On President's Address—J. M. Zion and Amos Garretson.

On Fruit Exhibits—W. C. Reed, H. H. Swaim, Joseph C. Ratliff.

Auditing Committee—L. B. Custer and Snead Thomas.

It was moved that a Committee on Fees and Salaries be appointed. The motion was seconded and carried.

On motion, the meeting was then adjourned, to meet at 7:30 p. m.

SECOND SESSION.

Wednesday, December 3, 7:30 p. m.

The second session was called to order at 7:30 p. m. by President W. W. Stevens.

A telegram from Hon. William H. Barnes, Secretary of the State Horticultural Society of Kansas, was read, announcing that on account of illness he could not be present.

President Stevens: We are all sorry, I am sure, that Mr. Barnes can not be with us. Mr. Hale, of Connecticut, has kindly consented to talk this evening on the subject, "Horticulture," in Mr. Barnes' place. I now have the pleasure of introducing to you Hon. J. H. Hale, of Connecticut.

The members present applauded as Mr. Hale came forward to speak.

HORTICULTURE.

BY HON. J. H. HALE, OF CONNECTICUT.

It is not always best to applaud the speaker until after he is through. I am brought here unexpectedly to take the place of Mr. Barnes, and to talk on his subject, and I suppose I must talk as Mr. Barnes would have talked if he had been here. Your applause before you have heard me speak on Mr. Barnes' subject reminds me of something that happened in Georgia. I have a fruit farm in Georgia, and we have a number of the colored brothers employed, and consequently get close to them. A Massachusetts friend came down there to visit me a few years ago, and,

of course, was much interested in everything, and after he had looked over the farm, he then went out to study the negro. We have a little town there of about 3,500, but we have in that town seven or eight colored churches, and some others outside of the town. Going out to a little country village, my Massachusetts friend ran across a little old church. An old darkey was sweeping the church, and, of course, my friend began asking questions, after the manner of his kind. He asked the denomination of this particular church, how large an attendance it had, and finally asked who was the pastor. The old darkey said he was. Then my friend went on asking more questions, asked the number in the Sunday-school, and finally came to the inevitable Yankee question, "How much salary do you get?"

"Well, sir," replied the darkey, "Ise been a-preaching to these niggers for two years, and Ise had just ten dollars in money."

"What!" said my friend, "only ten dollars? Why, it is a shame to let you work that length of time for ten dollars."

Here the old darkey broke in and said, "But hold on, Cap'n; you ain't never heard me preach, is you?"

You have never heard me talk yet, but I am glad to be with you this evening, and shall do my best to talk as Mr. Barnes would have talked had he been here.

My first regret is that the hall is not better filled, and my second regret is that there are not more young people here. The very life of the State itself depends upon the young people. You farmers and fruit growers who have come here from a distance should have brought your boys and girls with you, if you have any, and if you have none of your own, you should have brought some of your neighbors' boys and girls. We want the young people in all of these meetings. I was born on a farm, I have lived on a farm all my life, and if I ever die I expect to die on a farm—but I am in no hurry for that part, because I enjoy agriculture in every part of it, and horticulture in particular, because that has been my life work. It seems to me there is no place on earth where a man or a woman can get so much enjoyment out of life as in close contact with the soil, if they will but open their eyes and their souls to absorb the good that is there. But the trouble is that, as a rule, we work too hard. If I was a preacher, and was going out to preach on ten dollars for two years, I would take up the subject of judicious laziness. I would urge farmers not to work quite so hard with their muscles, and work harder with their brains. Then they would get more profit and more enjoyment out of the farm.

The subject which I am to talk about, "Horticulture," is rather a broad one, but is of particular interest to me as a farmer, because, when you come to think of it—and the ladies, perhaps, will appreciate this—the produce of the tree and vine is the only production of Mother Earth that comes to us all ready for food. All the other products of the farm

have to go through some process of milling or killing before it is ready for food. This is coming to be understood by the housewife. She is finding that she can feed her family largely on fruit and keep them more healthy than on any other food. During the peach season in the South we employ a number of little darkies. They come without any commissary, and we feed them. We issue certain rations to them, and they do their own cooking. One boy came there with two of his sisters, put up a camp, and for the first week came regularly for his rations. The regular ration of meat is six pounds a week; he wanted ten. The young lady in the office who kept the accounts told him he would not have much coming to him on payday if he ate so much meat, but he said, "You see, Miss, we is eating so much fruit we has to eat more grease to keep us healthy." That, a reverse order of things, but shows how one may look at it.

Fruit is already finished as perfect food as it comes from the tree and the vine, and people are coming to appreciate that more and more.

Now, friends, I am afraid I shall ramble in my subject more than Mr. Barnes would if he were speaking, but I can not help it. I am afraid my discourse will resemble the furrow plowed by the old darkey of whom Booker Washington tells this story:

A farmer took one of the darkeys on the place out to a field he wished to have plowed. He wanted the furrows to be nice and straight, so he pointed to an old white cow that was standing at a knoll at one end of the field, and told the man that if he would head straight for her he would have a nice furrow. After a while he came back to see the result, and found a furrow that wandered all over the field. He began to storm about it, and asked the darkey how he happened to make such a furrow. The darkey answered that as soon as he began to plow the old cow began to move, and he had kept the plow headed for her as he had been told.

Now I shall try to head for Barnes' subject, and you must not blame me if I finish up without a very straight furrow. But to go back to the subject of fruit as food. You know the more beautiful fruit is the more quickly we sell it, provided it is also good. People are demanding more and better things all the while. In 1890 I had charge of the horticultural census of the United States. We had five special investigations that had never been made before. The first was floriculture. That is the one I wish to speak of now. As there had been no start made in this line until that time, I got the Secretary of the Interior to allow me to go back—if not to the beginning of creation, at least to the beginning of this country. We found out that previous to 1800 there were but three commercial florists' establishments in the United States. In the next ten years not more than ten were added to this number. In 1850 there were less than 200 florists' establishments in the United States. From 1870 to 1880 the number increased by hundreds, and from 1880 to 1890 by thousands. After we had located the florists, we got out a schedule of inquiries and

asked them a lot of things about their business. Then we sifted down the information we secured. Now, there are dollars and cents in the point I am making. We found there was consumed in the United States in 1890 more than \$12,000,000 worth of cut flowers and about the same amount of bedding plants. Nearly \$25,000,000 was paid by the people of the United States to adorn their homes, their persons and their grounds. We found that all classes of people were buying flowers. You know, there was a time when people never bought flowers except for a wedding, a funeral or some other merry-making in the family. Now all classes of people are buying flowers. In the factory villages and all other towns, large and small, we find little florist establishments, and we were told that the workers in the factory villages were often among the best customers. Perhaps the workingman's wife would go to market with two dollars, and instead of investing the whole sum in vegetables and meats, twenty-five cents would be spent for flowers. That woman had learned what the best horticulturists learned long ago, that you can nourish people through their eyes. There is once in a while a man who will say: "Oh, give me the grub; I don't care how you serve it up!" We found, as the people became more and more cultured and refined in their tastes, they became larger consumers of fruits and flowers. We found by studying the statistics of education, and other moral statistics showing the higher elevation of the people in different sections of the country, that just as they went up in the scale of intelligence and refinement, so they became greater consumers of flowers. Show me from the census a community where the people did not buy many flowers, and I will show you a place where intelligence and refinement are at a low ebb.

If people will buy beautiful flowers, how much more will they buy beautiful fruit? As a business proposition, there is money in the culture not only of good fruit, but of beautiful fruit, and the more beautiful we can make our fruit the more people will buy; and if it is as good as it is beautiful we will keep their pocketbooks open and will get more and more money.

The increase of wealth and population in this country is something tremendous. There has also been a tremendous increase in the earning power of our working people. Of course, we often hear people say that a few are getting enormously rich and the masses are getting poorer. That is not so. As a whole, this great country is growing in wealth. Take, for example, my own city of Hartford, Conn. When I was a boy I was interested in fruit culture, and there was only one dealer in fruits in that city, and that was only forty years ago. I mean by this, of course, a place where you could buy fruit in variety regularly. In Hartford County at that time there were but two commercial small fruit growers, and one had a quarter and the other a half acre for growing it. I heard one of these men tell a neighbor one day, with a great deal of pride, that he had sold six bushels of strawberries that day. Now, with just twice

the population in Hartford, they eat in the season a thousand bushels of strawberries in a day. In 1812-14, when they wanted to celebrate the peace that followed the war of 1812, and were having a big blowout, they wanted to make an enormous plum pudding, and could find only seventy pounds of raisins in the entire city of New York. Now in California in one county they raise 70,000 tons in one year.

Our apple crop in 1896 was 70,000,000 bushels. Probably our next good crop all over this country will exceed 100,000,000 bushels. Twenty years ago Georgia had'nt a commercial peach orchard in it; there were 5,000,000 trees planted last year and 8,000,000 to 10,000,000 will be planted the present winter if trees can be had. I know of one nursery alone that has turned down an order for over 5,000,000 trees, and no nursery in the South has one-half enough trees to supply the demands upon it from Georgia the present winter. There are between 10,000,000 and 15,000,000 trees in that State alone, and they are planting more, because the people all over the country want fruit of every class over as long a season as possible. Apple planting is also on the boom in many States. East and West, for there are hundreds of markets that are not well supplied all the year around; and yet there is many a fruit grower who will tell you that fruit growing does not pay. We have all over New England today men with small farms who are growing a variety of crops, but ask the average of those farmers if it will pay to plant apple trees, and he will say that it does not; that they never get enough out of it in that locality to pay. Their way of growing them is to stick a few trees in the ground and let them grow as they can. They have no plan for harvesting and distribution, and yet, had the apples that were going to waste in New England this past year been collected in a group of orchards, there would have been 1,000,000 bushels of good apples saved to the market.

We farmers the country over have been trying to do too many things, and not doing any of them well. We farmers are really manufacturers. The soil is in a measure the empty factory with some of the raw material in it. If we put in other raw material in the shape of seed and plants and vines and trees, and put in also the proper labor, we can grind out a finished product, just as other factories do. Show me a man who has undertaken to manufacture hardware and silk and a whole lot of other things in the same factory, and I will show you a failure every time. But the man who has put his heart and soul into manufacturing a good plow, or a door hinge, a good piece of underwear or a good piece of silk dress goods will succeed, because he puts all his energies into one thing, turned out a good product and found a market for it. The trouble with our horticulturists today is that they scatter too much. The average farmer can not be a successful horticulturist. If his interest is in stock breeding or in growing certain crops, he will insist upon it that he can not do the pruning at the right time because something else interferes, and so his fruit raising is a failure. But men who take the opportunities that

are before them today, in the fruit raising business, men who study the conditions of soil and climate, can make a success of it. A gentleman was asking me today about buying land for an orchard, and I told him to buy land near his home, near the place where he was born—that that was the best for him to have. I told him he knew all the local conditions and could handle the orchard there more successfully than anywhere else. I said, however, that if the soil and the climate are not at all suitable that he would have to pull out and go where they were; but if he could manage it at all, to take the land near his own home, combining, if possible, commercial horticulture with the best sort of home life, for there is where one of the greatest opportunities of horticulture lies, in getting out of the soil those things that will give ourselves and our families immediate enjoyment. The laying out of home grounds, the planting of trees and shrubs suitable to those conditions, is a source of the greatest enjoyment to any family who tries it. Make the home surroundings a beautiful park-like effect. Do away with the unsightly piles of rubbish that so often disfigure the surroundings of a farm home. Making the surroundings beautiful does not always mean the spending of a large amount of money. It does not mean so much spending of money as it does putting in a little time and thought on the matter. It does not mean a landscape gardener nor the expenditure of thousands of dollars, but it does mean the expenditure of care and thought as you go along. Keep your eyes open and look for the beautiful trees and shrubs that grow in your own county; plant them, and do away with the unsightly things that surround your home. Do a little here and a little there, and keep it up; you will soon be surprised to find that you have a beautiful place. Most of the enjoyment of my life has been the planning and beautifying of my own home. We hear once in a while about some of our millionaire friends spending twenty-five, fifty or one hundred thousand dollars for a magnificent painting by some master artist. They hang it on their walls, and it is the same old thing today, yesterday, tomorrow and forever; but a farm home can get just as beautiful a picture at a much less cost, and it is an ever-changing picture throughout the whole year, winter as well as summer, if we plan right, for the outlook from many of our homes is beautiful, if we only open our eyes to see.

Of course, somebody will get up and say, "Where is the money in that?" Of course, there is none in clear, hard cash, but when you make money you spend it to have some fun with, something for the comfort and pleasure of self and family, and why not have the enjoyment out of these things? If you can make life more beautiful by diverting some of your money to your home grounds and surroundings, why, in the name of the board of trustees, don't you do it, for nowhere else can you get so much comfort. The opportunity the horticulturist has of building up the right kind of a home is beyond estimation. It does not matter where you begin, and you need never leave off; you can always be doing some-

thing for beauty and improvement. You, in the West, have not been as much troubled as we with unsightly fences, and we have had to do more grading, but, nevertheless, you have many opportunities and chances for development and planting. One of the things I beg every horticulturist in Indiana to do is to beautify the home grounds. Get rid of the unsightly farm devilment that is almost always in the back yard, and sometimes in the front yard, and have in its place large beds of beautiful flowers. The beds should be generous, not those little beds the women of the family have to dig up themselves with a trowel, but large, generous beds. Plant in them the common kind of flowers, and have quantities of them, so that all through the growing season you can have them by the bushel, not only to adorn your own home, but to give to every tramp and traveler that comes along. You will bless them and bless yourselves by doing this.

Now, I don't know where Barnes would have gone on from this point if he had been here.

Member: He would have followed the white cow.

Mr. Hale: That reminds me of another story. A lot of people living up in a block got into a row. It was one of those general family rows, and it got into court. An old Irish lady was testifying, and whenever they asked her a question she would begin and tell of all the troubles and quarrels that had occurred in the past two years. Finally the lawyer said: "Madam, we don't want any more of this. We want you to give us definite answers. We want you to say 'Yes' or 'No,' as the case may be. What the court wants to do is to locate the stairs in that house. In what direction do those stairs run?" "Well, yer Honor," she said, "if they are going to pin me down so close as that, I will just say, when I am downstairs they run up, and when I am upstairs they run down." That's the way with me.

I am a believer in the possibilities of horticulture in America as a pleasurable life and a profitable life. I further have a reasonable degree of common sense in some things—not in all; at least Mrs. Hale says so—and I believe a man or woman should be all the time engaged in some business that is pleasurable. I do not believe that a man or a woman should get up every morning and go to work that is a drudgery. Of course, stern duty will at times compel us to put our shoulders to the wheel and do our work wherever we find it; but, so far as possible, every man and every woman should do work that is pleasurable. And if we live on farms we can make our work pleasurable. Is not the farm where most of us go at last for pleasure? Did you ever hear of a man turning doctor, preacher or lawyer for fun? I never did. Did you ever hear of a man who had broken down his health by overwork taking up any of those trades? I never did. Did you ever hear of a man who had made

so much money that he wanted to give up business and enjoy himself taking up any of those professions? No; they all come back to the good old farm for rest and recreation and health. Now, why don't we, who are on the farms, get this health and happiness out of them that everybody sees in farm life—that is, everybody except the farmer? Because the farmer is too often engaged in a work that he does not love. Now, if you know any one who does not love his work on the farm, who does not love to see the trees and vines and shrubs grow, who does not love the stock and the fowl he takes care of and trains, you had better tell him to get off the farm as soon as possible, and come to town and go to doctoring or preaching and leave the farms to the people who love them. If you love to cultivate an orchard and prune it and spray it and care for it, whether it bears dollars or not, you will go into the work and take as good care of it when it does not yield as when it does. In the long run, you will get money out of it. You must love the fruit and flowers you cultivate if you would be successful with them. You must lovingly care for them all the way through if you would develop them to their highest possibilities. Then when it comes to perfection, gather it carefully and at the right time. Take it to some proper place, assort it and then pack it in new, neat, white, attractive packages, packing as carefully in the bottom and in the middle of the packages as on the top, pack it jam full, with the very poorest of the fruit in the whole package on top, and then say to the commission man: "These goods are all right all the way through, from top to bottom; they are honestly grown and honestly handled. Now, try and make your customers pay fifty per cent. more for it than for the other stuff you have there."

Mr. Chairman, I think Barnes at this point would quit talking and give the rest of you a chance to "sass" back a little and ask some questions. I think I have rambled around after that white cow enough, and have made a pretty crooked furrow, and I thank you for not having gone out. The door has been open all the time, so you certainly could have escaped if you had wanted to.

Mr. Burton: Dropping the subject of fruit for a moment, I should like to call attention to one subject Mr. Hale touched upon, that is, having fun out of our work and being happy in doing our work. I think we should all try his plan. If it was my business to carry the hod, I should try to feel like the Irishman who wrote back to his friends at home that this was the best country to work in. He said that all he had to do was to carry bricks up to the top of the building and there was a man up there who did the work. How happy we would be if we could all look at our work in that way. This is not the case with all our farmers. We ought to give more attention to this subject of enjoyment. I am afraid all farmers do not appreciate the fact that it is a grand thing to live on a farm.

And surely we ought to be happy on our farms, for they are giving us our living.

Mr. Flick: I would like to emphasize one point that Mr. Hale has brought out, that of loving the things with which you work. We are all acquainted with a gentleman who has been here today, who formerly had a little farm north of the city. We, who know him, all remember the magnificent quinces he raised there, the largest that have ever been shown in our State. I could not begin to raise such fruit as he did. At one time I thought I would find out the secret of his success by paying him a visit and seeing how he cared for his fruit. I went out there, and as I approached his place I looked over the fence and saw him at work. His trees and bushes were loaded with fruit, and as he went through the rows, I could almost fancy that he was talking to them and saying: "You have done well this year; you have beautiful fruit." He looked like a man among his children. He loved every plant and tree and bush on that plot of ground, and, in consequence, he gave them the best care and attention that he could. You have all seen the effects of his work. We ought to love our work, for unless we do we will not have much success. I have trees growing in my orchard that, when I see how grandly they have responded to my care, I feel like patting and caressing them. I don't know whether I hold communion with them, but there certainly is a feeling of close interest between myself and the trees. The trees bear beautiful fruit; I admire beautiful fruit and the tree which produces it, and I like to put it in nice packages. I often regret to see it go, but I need the money it brings. I believe we ought to get more enjoyment than we do out of our work, and I believe we can do this if we look at the matter right.

Mr. Hale: I think our Secretary is right when he says he communes with his fruit trees. We can not but know that there is a soul-life there, or something there that we are a part of and that they are a part of, and that all are parts of a great whole.

President Stevens: We are under great obligations for Mr. Hale's talk tonight. The next topic on our program is "Women in Floriculture and Horticulture," by Mrs. Sylvester Johnson.

WOMEN IN FLORICULTURE AND HORTICULTURE.

BY MRS. SYLVESTER JOHNSON.

We are told that in the first garden there grew everything that was useful and beautiful. It was planned and planted by the divine hand. The best there was to give—indeed, the best that could have been given—a rural home.

The love of home and the beautiful are ours by divine inheritance. And there is no home so humble or so small but that its beauty may be enhanced and it be made more attractive by its outdoor surroundings. Woman, who is the homekeeper, with her love of neatness and order, is well fitted for the cultivation of flowers and the adornment of her grounds and garden. It is her province to extend her domain beyond the four walls of her house out into the fresh air and sunshine, which are so health-giving and necessary. Nothing can be more ennobling than the cultivation of our gardens and flowers. We see so many wonderful things in the mechanism of flowers, and they help us to look away from nature unto nature's God, and we silently worship Him.

I feel that I can say very little, if anything, to this audience tonight of benefit, but if I could reach the ear of the poor mother, who, perchance, has only a narrow bit of ground in city or village that is often so unsightly, I would speak to her of the benefits she and her family might receive by the careful cultivation of this ground. And she would be surprised at the amount of vegetables that she could have by utilizing all that she could possibly spare. She could have early vegetables and others that are so necessary for her family use. I would ask her to border her little paths with flowers and have vines over the walls. I was going to say that she could have common flowers, but there are no common flowers; all are beautiful, from the commonest flower beneath our feet to the most expensive. The mother, with her outdoor surroundings, would give a better inheritance to her children.

And having taught her children the love and care of each germ, blossom and fruitage, they, too, would be tenderer and purer, and something better, and each, in time, would go out to make better homes for themselves.

Flowers, as I have said, are within the reach of all who love them and take enough interest in them to care for them. I will speak first of vines. They are so beautiful and occupy so little room, with the sweet-scented blossoms of the young honeysuckle, climbing roses, the passion vine, with its wonderful flowers and ivylike leaves, all together go to make a veritable Eden of our homes.

Then there are the perennials that should not be forgotten. With what interest in the early springtime we look for the little germs bursting through the leafy mold. The peony with its scarlet beans, the tulip and the snowdrop, and the old fashioned pinks that we so seldom see now since the carnation has supplanted them—these flowering roots are concealed now for a time with winter's kindly mantle which will soon disappear and lo! our flowers will come forth again in all their beauty and fragrance.

I need scarcely mention the annuals that we are all so well acquainted with, of every hue, fashion and color. The plain white petunia is such a beautiful flower and so easily grown that it deserves attention. I planted them beside the verandas, the doorsteps and other places, and they scented the yard with their fragrance. I shall watch in the early spring for their coming again. The Drummond phlox and verbena, too, are fine for the yard. Then the cannas and the callas, but I must not linger to speak of others that come trooping up as if they each one said, "I, too, am worthy of mention."

Dear friends, let us each one do what we can toward having these beautiful children of the sunshine and rain about us, and let us kindly distribute to those who have none as far as we have opportunity.

Aaron W. Morgan: I certainly want to endorse all that has been said on this subject. It is evident to any one who is interested in this line of work that it exerts an influence which it is impossible to over estimate. Twenty-two years ago, in the State of Illinois, I became a horticulturist, a florist and a landscape gardener. Previous to that time I had mined coal. For years and years I never saw anything of the beauties of nature, except that now and then I would see an impression of a beautiful fern between the slates. But I loved nature, and after a while I went to a greenhouse and bought a beautiful plant. My knees were coming through my clothes and my feet through my shoes at that time, and my wife asked me why I had not bought clothes instead of flowers. But I loved the flowers, and was not happy until I began to grow them. It is said that man should live under his own vine and fig tree. I was pleased with the suggestion that we should not have small flower beds, but large, generous ones, in fact, that the flowers should be planted almost by the acre. Why should we do this? Not for ourselves alone, but to give to our friends and to every wayfarer. What is better to give to a person who is ill or shut up for any reason, than a beautiful bouquet? Often that is better for an invalid than a visit from the doctor. It seems to me there is more money spent in Indianapolis for fruit and flowers than for anything else in the market. And we are simply in the beginning of the culture of fruits and flowers. If I had money today to invest I would rather put it in fruit than to invest in any other department of industry. I know of nothing better or more elevating than to go into a

business of that kind. The growing of fruits and flowers and having them about will make any one better and nobler.

Mr. Johnson: On going home this evening I found this letter on my table:

Albion, Ind., December 2, 1902.

S. Johnson, Irvington, Ind.:

Dear Sir—I can not be at the State Horticultural meeting to-morrow, and there is a subject I would like to have thoroughly discussed, that of "Commercial Orchard." Of four or five of the best varieties for that purpose Noble County made selection of the four following varieties: Baldwin, Jonathan, Ben Davis and York Imperial. I am not satisfied with Ben Davis, I think we will have to discard it. It is too poor in quality and the people are going back on it. Can't you bring this subject forward and have it discussed. I meant to have written Mr. Flick, but put it off too long. Hope this will reach you in time for the meeting, and also hope you may have a successful meeting.

Respectfully yours,

WM. TALBERT,

Albion, Ind.

President Stevens: Can any one give Mr. Talbert the information he asks for? What variety of apples would be most desirable in a commercial orchard? I think some of our local fruit growers should answer this. I should like to hear from Mr. Burton.

Mr. Burton: I am afraid I am not competent to answer that question, because our different localities differ so radically. If I say the Grimes is the best, possibly it may be getting too far north. If I say the Ben Davis, why there are hundreds of reasons why we should not raise that variety; there are too many raised now. It is working much against our fruit business, because those who buy Ben Davis apples can live half a winter on a bushel, where they would eat ten bushels of Rome Beauties or Grimes. I shall ask Mr. Swain or Mr. Henry to answer that letter; they are from the northern part of the State.

President Stevens: I think the gentleman wants a variety to take the place of the Ben Davis. He is not partial to the Ben Davis at all, and he wants to know what this Society would suggest instead of that variety.

Mr. Swain: I am not sure of my own mind in regard to the Ben Davis. I think Mr. Burton is right when he says there are too many of them raised now. When we raise a fruit that is inferior in quality and put it on the market we do the trade an injustice. I do know, however, that we frequently get the Ben Davis to hang on the trees during years when we do not get much else. The Winesap is apt to be a little too small in the northern part of the State to be profitable. They do not grow as large as they do in the southern part of Indiana. Grimes does

very well; it is a very satisfactory apple with one exception, it ripens too early. The Hubbardston is a good apple, with the same fault that Grimes has for growing in the northern part of Indiana—it ripens a little too early. I don't care to say it excels the Grimes—I like them both. They are both good producers, but not very hardy trees.

Mr. Johnson: What apple sells best in your part of the State?

Mr. Swaim: Any one of them will sell.

Mr. Burton: Any objections to the Jonathan?

Mr. Swaim: The Jonathan is like the Winesap up there, it is hard to get them to grow large enough. I am watching with some little anxiety to see how the Mammoth Black Twig is going to do in that section. If that tree will produce well I think it will make a good tree to plant. It is a question whether they will produce enough to be profitable.

Mr. Burton: Do you think you need a new good apple?

Mr. Swaim: Yes. We need an apple that has the quality of the Grimes and the Hubbardston and the bearing and keeping qualities of the Ben Davis. We have apples of a good quality and apples that are good bearers, but they are not combined in one variety.

Mr. Grossman: What do you think of the Smith Cider for our section?

Mr. Swaim: I have seen it growing, but do not know much about it. I have seen the York Imperial and the Ravenstein, all bearing nicely and apparently doing well. The trees looked healthy. I have not grown them myself, so can not speak of them from experience.

Mr. Johnson: Does your view coincide with his that the people are going back on the Ben Davis?

Mr. Swaim: No.

Mr. Hoffman: The Grimes was not very good this year. Smith Cider was, but I have never had an apple from which I made so much money as I have out of the Ben Davis. People will "cuss" it, but they will buy it. I have over 3,000 bushels of the Ben Davis on hand now, and I expect to sell every one of them. The White Pippin is one of our best apples. But this year Willow Twig, Smith's Cider and Ben Davis were my principal apples. If I had to make a living from growing Winesaps I should have starved to death long ago. They have never been a success in my part of the State.

Mr. Burton: Let us not ignore the statement that people are growing tired of the Ben Davis. Last year I sold a man my apples, including the Ben Davis; this year he came back and I sold him two carloads of apples,

and he said emphatically, "I shall not buy any of the Ben Davis apples." I shipped two carloads to New Albany two weeks ago, and the buyer said he lost money on the Ben Davis, and that he would not buy any more of them.

Mr. Buker: I would suggest that instead of Ben Davis the Wagener; it is a fair apple and produces well. The objection to it is that it is like a dwarf and does not live long. In the northern part of Indiana the Rome Beauty is a good apple. It is of good quality. I think there have already been enough of the Ben Davis planted, and I suggest that we now plant some of the varieties that have been mentioned during this discussion.

The meeting was then adjourned to meet at 10 o'clock a. m., December 4th.

THIRD SESSION.

Thursday Morning, December 4, 1902.

The fourth session was called to order at 10 o'clock a. m., by President Stevens.

Secretary Flick: I would like to state again that we want the enrollment of every person who has attended the meetings, whether they are members or not. Of course, we want your membership. Our membership is not large enough. We ought to have a membership of 1,000, whereas, we have only 300. Every one who grows fruit, if only for home use, ought to be a member of this Society.

Another thing, I should like to know if you received copies of the report of the transactions for 1901? Every member is entitled to one report, and we wish you all to have them. They were bound, as usual, and were wrapped and mailed, but the postoffice authorities were uncertain whether they were mailable at newspaper or letter postage, and I am afraid some of them were held up in the Indianapolis postoffice.

We would like to have at the Secretary's office the name and address of the secretary and president of every organization connected with horticulture or floriculture, and especially the commercial fruit growers. I have in my hand now a letter from Chicago requesting this information. These parties want to buy your fruit, and I could not direct them to many fruit growers in Indiana. If I had a complete list of all the fruit growers I could help you market your fruit.

President Stevens: Mr. Hale, of Connecticut, will now speak on "Modern Methods of Fruit Culture and Marketing."

MODERN METHODS OF FRUIT CULTURE AND MARKETING.

BY HON. J. H. HALE, CONNECTICUT.

I am here this morning to talk to you on the subject announced by the President. I was here last night in place of Mr. Barnes, but great is the newspaper and newspaper reporting, for I see that your city papers state that Mr. Barnes, of Kansas, made a splendid address before the Society. However, having done some newspaper work myself I know something of how these things are done, so we will forgive them this time.

The subject of the morning, "Apple Culture and Marketing," is of great importance from a financial standpoint, not only to the members of this Society but to the State of Indiana, and to every State in this Union where apples may be grown, because, say what we will of other fruit crops, the apple is king of them all, it is the one fruit that has a place and a market and a demand 365 days in the year. And not only has it a place and a market in our own country, but abroad, because it is the one fruit we may grow in any one section of the country and market in any other section of our own country or in any other section of the world. If that is not literally true at the present time it will be in the near future. Thanks to refrigeration and modern methods of transportation.

Now, I have been looking up the apple somewhat and the history of its cultivation. Do you know that the first planting of fruit in America done on the Atlantic coast was with the idea, not of getting something for food, but getting something for drink? Apples and vines were planted that the people who settled there might make out of them something to drink. All of the original apple orchards of the east were planted mainly for producing cider, and no well-regulated Puritan family thought it could pull through the winter with less than fifty barrels of cider, and some of them needed a hundred barrels, and then they came out dry in the spring, both the barrels and the Puritans. With little or no culture the trees grew and gave fruit that was good enough for cider. Out of this careless production of apples has developed the main body of the apple orchards of America. It is only within twenty or twenty-five years that people have begun to eat fruit in very large quantities. And with the increasing quantity that is eaten has grown up the demand for better fruit, better looking fruit, better keeping fruit and fruit of better quality. The demand for fine fruit has become such that, at the present time, the old time apple orchard, the old time way of handling and marketing its product, are back numbers, and the man who attempts to market his apples along the lines that our fathers did, might as well give up the ghost now as any other time, because sooner or later he must go down under the march of progress that demands sound apples and more beautiful apples and apples put on the market in a better shape.

As I said last evening, the successful fruit grower must believe in the business and be a lover of fruit growing. The modern apple market is going to be largely in the hands of men and women who love apples for their own sake and who like to put nice looking fruit on the market. So the first requisite to succeed in this business is not the land, is not the variety, is not the locality, but the right kind of a man or woman back of the job. It is the right man or the right woman that is back of the business that will make a success. The spirit of good culture, the spirit of honest packing and marketing must be in the heart of the man or the woman, together with a love for the business and a belief in themselves and their apples. Then comes the soil and the location. If you are free to go where you will, of course, there are localities where apples can be grown better than in others. But if you are tied to the old home, to the old surroundings, make the best of the situation. Rolling land, land that is well drained of water and air—and air drainage is just as essential to good fruit as water drainage—should come first in selecting your location. In a general way I would say, without knowing anything particularly about it, that your best apple lands in Indiana lie in the rolling lands of the southern counties of the State, and not in the north, but you can grow good apples in the northern part too. High, well drained, rolling land is where the finest apples may be grown. The apple will stand land of greater natural fertility than any of our tree fruits, and yet, if I had my choice I would not care for land in the highest state of fertility; that is, land rich in organic fertility so as to make a greater growth of wood, if lighter land might be secured under equal conditions.

Then the land must be well plowed and tilled; in fact, I know of no land that can be too well tilled for any crop. Tillage is the great essential factor in choice production of any of the products of the soil. I had a lesson in that some years ago when I was in California. I visited General Bidwell, whom some of you perhaps voted for for President of the United States on the Prohibition ticket—and I take this occasion to say that he is one of the greatest men who have lived in America. He has in the Sacramento Valley one of those great valley farms, rich, black, fertile soil, and there he grows the vines and the figs and the apricots and the apples by the thousands of acres, and wheat by the tens of thousands of acres. Doing business on so large a scale he, of course, has the modern implements. He puts in his wheat at a rapid rate, and does it about as well as the average wheat grower in America. His farm has 40,000 acres, and adjoining him is a farm of 500 acres owned by a woman. She did not have all the modern implements as he had them on his farm, nor did she have the money to get them; but with a couple of good mule teams the land was plowed, then let fallow a couple of months and cross plowed. Then the harrows went over it and tore it up, and then went over it again. Then the seed was brushed in. General Bidwell, who got nominated for the Presidency, got on an average fifteen bushels of wheat to

the acre, and a woman whom you would not let vote got thirty-four bushels to the acre, because she knew how to till her soil. That applies to every branch of agriculture. It is just as necessary to prepare the land for your apple trees before you put them in as it is to prepare the land for any other crop.

Now comes the question of the trees. I have been growing orchards all my life, and I have always been an advocate of a good, thrifty yearling tree. Later observation has convinced me that if you want an orchard in the quickest manner, if you can get the trees from a nurseryman at six years old, that have been two or three times transplanted, or you may get them from him at one and two years old if you are not in such a hurry, and transplant them in nursery rows for three or four years. At our experimental station in Connecticut they planted a twelve acre test orchard a few years ago. The main orchard was planted with trees that were two years old; but in the experimental nursery of the college, where the boys propagated the trees and transplanted and handled them, they had all the varieties of trees that were going into the orchard in six-year-old trees that had been transplanted two or three times. They were so large that usually we would think they were too large to be transplanted at all. But they took some of each variety for the orchard. The man in charge put in a few of these larger trees in each row. They had the same tillage and culture as the other trees, and they are now full bearing, while there is not another tree in the orchard that is doing that. I planted some orchards this past year, and I have planted them very largely with the older trees. The trees cost more, but don't stop to question the cost when you are planting an orchard. Get the type of tree you want, get as good a tree as can be grown, and then pay the nurseryman a fair price for it. One of the greatest curses in this orchard business is the planting of cheap trees. We have ground the nurseryman down and down and down until he has had to supply trees that will not make good orchards. He is not to blame; he will furnish you good trees if you are willing to pay for them. Don't blame him, for the planter has encouraged him to cut across lots at every corner in his demand for lower prices. Orchardists in this and other States will write to a half dozen reputable nurserymen in the country and try to get the trees at the lowest possible price. That is wrong. Get the best tree you can get regardless of price. What is five or ten cents more on a tree? What does it amount to on fifty trees to the acre? Two or three barrels of good apples will pay the difference by and by.

So I say, the foundation of your orchard lies in good trees. It lies further in having trees propagated from good stock. This demand for cheap trees has led to propagating in the easiest possible manner. I believe it is a mistake to propagate from the nursery row. I think we should always propagate from bearing trees of known quality. Of course, that costs more. Of course, the nurseryman will do it if the orchardists will

pay him for it; but the orchardists claim that it costs too much. If you want to breed good hogs or cattle or horses you always hunt for the best stock in the country and pay the fees; but when you want to start an orchard you hunt for the nurseryman that will give you the largest number of trees for the least money, regardless of the stock. Local conditions, local handling, climatic conditions, cultivation, and other things have most to do with the results of the tree fruiting; but there is a great deal in the blood of a bearing tree that is in the habit of fruiting. I have peach trees in my orchard that year in and year out give magnificent crops of fruit, and there are trees of the same kind in the same row that do not bear nearly so well. I think a great deal of this is due to the pedigree of the trees, and I am sure I am safe in propagating from the best trees.

The distance apart at which the trees are planted is another important thing in the growing of an orchard. I do not believe in planting the whole orchard at the final distance I intend to have the trees remain. If I have decided on forty-five feet as the correct distance, then I want to plant at half that distance twice as many trees, with the understanding that when they have come to touch one another the surplus trees are to come out. There is where crops out a very common weakness in human nature. We can not quite decide the time when that thinning out process should begin. If we have a magnificent crop of apples this year, even though the trees are touching, the Devil will say, "Just let them grow for another year and you may get one more good crop." So you let them grow another year, and then you have only a fair crop, but you hope you will get another good crop the following year, and decide to let them stand just one more year. That is a mistake. The only way to get a successful orchard is to plant two or three times as many trees to the acre as you wish to have finally. Then give a mortgage on the orchard to some fellow in town whom you detest, he to foreclose that mortgage as soon as those trees begin to touch. Then I think you will be safe.

By good culture and pruning this orchard comes into bearing in a reasonable number of years, and for four or five years you may get four times as many apples to the acre as if the trees were planted the distance apart you intend to have them remain. Some orchardists plant them in the first place the distance they are to remain, and then plant other crops on the ground until they are large enough to bear. That is a mistake. You can not do two things well. You can not afford to do this. Some of you old bald heads remember in your early days when you were sweet on the girls and had one girl in this village and one in another, and you had to be very careful not to let one know of the existence of the other. But after a while one of the girls always caught on and they both threw you over. Now, we of the younger generation know better than that. We get one good girl and stick to her. Don't plant any other crop in your orchard if it is apples you want. Plant the trees by double planting, give them the best culture possible during the early growing months of the

year, April, May, June and July, in this latitude, and then when the trees begin to touch, thin them out. After cultivating the ground during these months, seed the ground in some cover crop that will protect it from the suns of the later months and the cold of the winter. Early in the season everlasting cultivation, and late in the season some crop that will cover the ground and protect it. I use largely cow peas and clover for this purpose, or some other leguminous crop that will gather in the air and furnish food for the trees, shade the ground from the sun during the later summer months and protect it in the winter. Just as soon, the following spring, as the clover begins to grow, begin to plow. Don't let the clover grow, but just as soon as the ground is dry enough to plow, get your plow to work, and as soon as you are through plowing, get your cultivator and harrow to work. Plow the land as early as possible, and then cultivate it over and over and over again, as the good woman in California did. Summer prune and fall and winter prune so as to make the ideal shape of tree you desire. You can make a tree just as you make a chicken coop. The material is there, and by leading buds in the proper direction you can build any shape you desire. For the first four or five years of the orchard's life, build the trees as you wish them. Crowd the growth early in the season. In six or eight years you have practically a well grown orchard that will begin to bear some fruit.

Then come other problems that have to be worked out. There is no reason why apple trees should not bear a good crop every year, except occasionally when they get knocked out by extreme climatic conditions. It is the natural condition of fruit trees to bear every year. Occasionally, of course, they get knocked out, and then the next year they may overbear and tax their strength too much. It is good to bring up a tree as you bring up a child, in the way it should go. When the tree begins to bear you should begin the habit of thinning. If a tree, the first year, attempts to bear ten specimens, I would pick off half of them. The next year if it attempted to bear fifty, I would throw away thirty-five of them and leave the remaining fifteen evenly distributed over the tree. I would do this each year of the tree's young life so as to produce annual bearing habits.

To me one of the most important things of all—and it is something about which little is said—is the summer pruning of an orchard. In all our pruning the tendency has been to work for shape, and then if there were crowding branches to cut out the weak ones and leave the strong branches. I have been practicing the reverse of that. The weak branches tend toward fruitfulness, while the strong branches tend toward wood. I am growing apples and not wood. Then in the summer, not too early and not too late, the pruning should begin. If you prune too early you start new buds and branches that will be winter killed. Use your own brains as to the time, but summer pruning a little after midsummer should always be given. Go into the top of the tree and cut out the strong

"leaders." Don't just trim them, but cut them out and leave the strength to go into the branches. Pruning in the growing season checks the woody growth and developes fruit spears. I do not do this in the first five or six years of the tree's life, because then I am building a tree and want wood. Now, you want your bearing wood down low; you don't want your apples up in the air where it takes a long ladder to get at them. Then in the winter and early spring your regular pruning for the shaping of the tree may continue as much as the tree needs, but do the summer pruning of taking out the strong wood every year so as to keep the tree down and develop the fruit buds. Then you will have a strong development of fruit buds every year. Of course, if for some reason the buds are killed one year you will have an overbearing the next, and then you will have to do more severe thinning. The apple growing of the future does not mean an easy time. The successful fruit grower of the future will thin his apples every year, and if the summer pruning and the cultivating is properly attended to, he ought to have a good deal of thinning to do. It is said to be an expensive process, but it does not cost as much to pick small green apples and throw them on the ground for hogs and sheep to pick as it does later on to pick up the fruit and sort it out and not have a good market for it then because it is not first-class fruit.

Now we have our apple orchard up to the bearing and fruiting, and here comes another thing that is very important to me. The average apple orchardist of the past usually began picking apples when enough had dropped and the ground was covered. He would then commence to pick what was left on the trees, put them in piles on the ground and hoped somebody would come along and buy them. After a month or so, if nobody came, he sorted them and packed them and disposed of them as he could. Apples on a tree never all ripen at the same time. You pick tomatoes a few at a time; you pick your ripe strawberries one day, and the next come along and pick the next lot that ripens, and the next day the same until the berries are all picked. We do the same with peaches and other fruit, except apples. We are from fifteen to twenty days getting the entire harvest from a peach tree. The apple orchardist, however, did not do that way. He waited until a great many apples had dropped, and then stripped the tree of what was left. Apples should be picked as they mature on a tree. Pick the matured ones one week, next week pick what are matured then, and so on until they are all picked. These apples are worth more money than if you pick them all at one scoop. The modern apple grower is going to pick his apples as they mature, and he will be a month or more doing it, because that is the way they mature on the trees.

We are speaking now in a general way of winter varieties. I have not touched on the other varieties, and I do not intend to, as that is largely a local question. If you live near a large market town, and aim to do a local business, you will have to have a variety of apples covering the

whole season, to supply the market. But the large body of us live too far away from the markets, and we must gather our fruit and pack it and ship it to distant markets. The majority of our money-making apples are the long keeping ones. If that is the case we should decide what we are going to do with them. It may be best to ship them immediately to Europe or to some distant market in our own country. If that is so, gather them from the tree carefully, sort them into one, two or three grades, as the case may be, always two grades, usually three. I have assumed that every intelligent orchardist has sprayed his trees, and that he is producing smooth, fair, handsome apples. Now, the question of grading comes in. They should be graded according to size, freedom from worms and fungus diseases that cause blemishes. The great trouble has been that the packer of apples packs the best he has and calls them No. 1. There is no standard for apples among the average orchardist. The fruit growers of the United States should establish a standard for apples. You know there is never a commercial value on any manufactured damaged goods, and that is why we so often receive such a small price for our fruit. With our lack of skill in growing we have not produced first-class fruit, and in our desire to get some returns for it we have packed what we had. Now, the manufacturer of silk, or hardware, or anything else, after he has manufactured his goods, has them carefully inspected and the least little flaw causes a piece to be rejected and it is put in the second-class. Only the perfectly first-class goods are wrapped up and the stamp of the factory put upon them, and then they are shipped to every part of the world. If a buyer opens a package of this manufacturer's goods and finds, perchance, that there are some damaged goods in the package, he does not write a saucy letter back to the manufacturer and be laughed at for his pains and be told, "You have bought the goods; now you must keep them." No, he lays them aside and deducts the price from the bill, and the manufacturer apologizes and tells him to sell them for what he can get and apply the proceeds to his credit. If we sell our goods as we have been doing, in the long run, the buyers will buy on the basis of the damaged ones and make us throw in the good ones.

Now, if we grow our apples properly and pick them as they mature, and then grade and pack them properly, we will always have a market for them. The package we pack them in should always be a new one. Don't let your apples lie on the ground and "sweat out," as some people say, and get a color. Let them get a color on the tree. Pack them each day as fast as they are picked. Pack them absolutely the same from top to bottom, every package, and pack as full as you can without bruising, and then guarantee them by a good label or stamp on every package.

There has been a good deal of misunderstanding about cold storage. Some people had an idea that they could put any kind of fruit in cold storage and get good results. Some people put in cold storage apples that they could not sell when there were other apples in the market, and then

they kicked about cold storage, because they did not come out all right. If you want to take good apples out of cold storage you must put good apples in.

As to the packages in which apples should be put. I think some day the barrel will be discarded for packing apples. We should do all we can to increase the consumption of apples and other fruit, and one way to do this is to make fruit easy to buy. A year ago there came over from Belgium a couple of young men recently graduated from the university. Their father had ample means to allow them to travel, and they were making a tour of the world before selecting professions. They traveled through our country and were amazed with the ease with which fruit was grown here, and they decided they would take up fruit culture in America. Then they studied the question closely, visited fruit growers, and in time came to me in regard to the matter. In speaking of apples they exclaimed at the magnificent apples that were grown here, but said there certainly was something wrong about the distribution of the fruit. They said that in one city they found fruit very scarce and very high priced, while in another not far away they found it very plenty and very cheap. They asked why we did not distribute it better. They said they could go to a fruit stand and get an apple for five cents or three for ten cents, as the case might be; but if they wanted apples in any other quantity short of a barrel they could not get them. They said they could not take a barrel of apples with them to their room in a hotel. They asked why apples were not packed in smaller packages so that people could take them to their rooms or to their homes. I agreed with them that they should be packed in some other packages than barrels. You know many people in our cities live in flats—called so because they are flat up edgewise—and they have no place in which they can store a barrel of apples. Why not pack our apples in boxes? A package as large as you can induce people to buy unbroken is the best thing for us. We should not encourage families to buy broken packages of fruit. If we make the packages so large that the retailer must break them, we are catering to low consumption of fruit. To increase the consumption of apples and to increase their attractiveness and increase their keeping qualities, we should put them in smaller packages than barrels. My present belief is that a bushel box is what we should pack them in. That is a package of such a size that a family can easily take care of it, and it is one through which the cold air of the cold storage plant can reach promptly. There is everything in its favor and nothing against it, except that it costs a little more. I have found in fruit growing, however, that when you get something that costs you a little more, you can charge it up to the other fellow—he will pay it if grade and quality are all right. That is true in every business; the final purchaser pays the freight. Don't you remember what we said when we talked about the tariff years ago? You know it was said that the foreigner paid the tariff when they brought their goods

in; but people have long ago found out to their cost that the fellow who wears the goods or consumes them, pays all the cost every time.

There is another thing against the barrel. Cold storage tests that have been made show that it is almost impossible to get the interior of a barrel of apples as cold as the outside. Many packages, when opened up, show that the outside layers are sound while in the center of the barrel the apples are more or less weak or perhaps rotten, because they are in a sweat box in there. The cold storage plant is a very great factor in the successful handling of fruit. We have enough cold storage houses in the country, if we used them properly. The trouble is that we have been keeping our apples until they were ready to spoil and then putting them in cold storage and getting poor results. I should like to have my fruit in cold storage the day it is picked from the tree, if that were possible.

Now, as to the sale of your fruit. That, of course, is a local question with each of you, but as a rule, each one should settle upon some regular market. Go to this market and get in touch with the best commission men there, get acquainted with them and have them get acquainted with you. Get them to visit your orchards and let them see how you are growing the fruit. Let them have a thorough knowledge of every detail of your business. If you are doing it well, they will have faith in you, and if you are not doing it well, they will not have faith in you, and the sooner you find that out the better. If you are growing and packing your fruit properly they will go home and say, "I have some apples or peaches from such and such a man, and they are all right. I know they are all right, because I have seen him take care of them." The customer may say, "Oh, yes, but the dealer across the street has some fruit that looks just as good, and he asks twenty per cent. less for them." "Yes," the dealer may say, "but I know this is all right," and in the end he gets the price for them. Get your commission man to believe in you, but first have a firm belief in yourself. We have heard a good deal of talk about the commission men robbing us right and left. I do not think that is true. The commission man can not afford to do it. Of course, there are some men in every business that are not straight, but there are more honest men than crooked men among them, and you must remember that you can find some awfully crooked fruit growers if you will begin to look for them.

Now, I have traveled along on this subject far enough, and said enough to stimulate you to ask questions. I don't know all about the business, or a very small part of it, and I have been making mistakes all my life. I do know, in the bottom of my heart, that the fruit business in America to-day is the best business in sight for brains and energy and capital. I believe in Indiana to-day the soil conditions, the climatic conditions and the market conditions, located as you are in the very center of this wealthy United States of America, make the opportunities along horticultural lines greater than in any other direction. Those who are fitting them-

selves for agriculture and horticulture, if they will put the same amount of brains and energy and capital into it that young men do into other business, will soon stand head and shoulders above the others. I have two boys who were born and reared on a fruit farm. One of them is out of Cornell and is working on a fruit farm, a rough, stony farm, and he is spending \$200 an acre to clean it up. The other one has still another year at Cornell, and he will come back and do the same thing, right on the old home farm.

DISCUSSION.

Mr. Johnson: I should like to hear something about your method of pruning peach trees.

Mr. Hale: Formerly I followed the method they do in California, of shortening one-half or two-thirds of the previous year's growth of the stronger shoots. Now, I cut out entirely in midsummer the strong central growth. I let the tree make its vigorous growth, and the most vigorous shoots will be in the central head going towards the sky, and along about the twentieth of June in Georgia and first to tenth of August in Connecticut, I cut that growth out entirely. There may be six or eight or ten shoots in the main body growing skyward. We go in there and cut them out entirely, and then the strength goes into the side branches. We prune for cutting out the crossing branches in winter.

Mr. C. A. Howland: How do you keep the side branches from straggling? The Keiffer will straggle if you do that.

Mr. Hale: My way with the Keiffer would be to cut it six inches below the ground and burn it. I believe in growing good fruit.

Question: How much do you cut the apples in the summer season; that is, the main shoots?

Mr. Hale: After the tree gets to bearing I cut the strongest new shoots out entirely each year. I want a low tree; I want it where I can work at it in spraying, fruit thinning and harvesting.

Mr. W. W. Stevens: We have in our State a good deal of fruit land that is rolling. How would you recommend us to manage that land?

Mr. Hale: We have pretty hilly land in Connecticut, and I never saw any so rough I could not till it. Why, some of it is up edgewise! It is seven acres to the square acre there in some places!

Mr. Stevens: What do you think of the mulching methods?

Mr. Hale: You can mulch if you till, occasionally; but tillage is much better. One acre thoroughly tilled is better than two that is not tilled. Of course, you can terrace it.

Mr. Shoemaker: How do you plow among your low, heady trees?

Mr. Hale: Of late years, where it is not too stumpy, we use the California Senior Cutaway. With that your horses are in the middle of the row away from the trees and the machine is close to the tree. It will turn over clover first thing in the spring. It will not turn under the clover after it has had its growth, or after it has attained a growth of six inches.

Question: How close do you plow to the trees, and how deep?

Mr. Hale: The question of depth is a local one. We plow close up to the tree. A row of sod close to the tree is a delusion and a snare. I plow and harrow nearly 2,500 acres of orchard every year and turn over every inch of the ground.

Question: What about the roots of the trees? Does it not cut them?

Mr. Hale: If you have continually cultivated from the time you planted the trees they will have learned to keep down out of the way. You can not plow that way in a neglected orchard. If you have mulched for years the roots are near the surface, and these should not be cultivated in this way.

Mr. Johnson: How do you thin the fruit?

Mr. Hale: By hand. We have not as yet discovered any other way.

Mr. Davis: We have peaches that ripen in October. Can you summer prune those trees while the peaches are on?

Mr. Hale: Yes; for the time the peaches stop growing the wood has stopped growing.

Question: Would your system of cultivation apply to pears and cherries?

Mr. Hale: I would have to answer that from faith rather than actual knowledge. I have no cherry orchard and no pear orchard now. My observation leads me to conclude that, taking the country over, the fruit growers who are good tillers of the soil are the ones that are making money. Did you ever hear of a farmer becoming bankrupt through excessive tilling? The man in any community who has good crops of any kind, in dry seasons as well as in wet, is pretty sure to be the one who tills his soil the most and best.

Question: What about the exhaustion of pollen from an over-production of fruit buds?

Mr. Hale: Do you mean to say that every year here in Indiana your apple trees set too many fruit buds?

A Member: Yes; I think we do have an over-production of fruit buds every year. This is so unless there is an exceptionally late frost.

Mr. Hale: My experience is that you get too many one year and none the next.

Mr. Howland: There are too many buds in abundant years, but usually nature thins them out pretty severely, and I would always rather have a surplus than not enough. I think the pollen exhaustion question is a matter of theory.

Mr. Zion: Mr. Hale said if he had Keiffer pears he would cut them down below the ground and burn them. I understand he is not a grower of pears. I think it would be a national misfortune to lose the Keiffer pear. I think it is a very popular pear for canning. I should like to know what kind of pear you would grow, Mr. Hale.

Mr. Hale: In the first place, a pear that is so poor that it has to be canned to fool somebody into eating it, is not a good pear.

Mr. Howland: What would you substitute for the Keiffer pear?

Mr. Hale: I don't think there is any substitute for it.

Mr. Little: What would you plant?

Mr. Hale: With us in New England the Clapp's Favorite, the Bartlett, the Sheldon and the Lawrence carry us through from the first of August until March, and we have fine eating pears all the time.

Mr. Little: What would you say if your customer refused to buy the summer pears and asked for the Keiffer? You can not down the Keiffer pear. All the speeches made against it are simply booming it.

Mr. Nysewander: Mr. Hale did not name the Dutchess pear. I live here and do business in the produce market. There were thousands of bushels of Keiffer pears in the East market, and the cars were full of them. It seems to me it would be well now for the growers to turn to something else. It is true that the Keiffer pear in central Indiana is like a vigorous weed. Nature takes care of it. The farmer has nothing to do with it except to try to force it on the consumer. I have heard that if you take a Keiffer slip and put it in a swamp it will do the rest. That may

account for the attachment some of our horticulturists have for this pear. This past season they have had difficulty in selling this pear, and they will have more in the future.

Question: Mr. Hale spoke of boxes for packing fruit. Would you have a tight or a slat box?

Mr. Hale: I would have a tight box for all fruit. If fruit is picked cool and dry and put in tight packages it will keep better than if it is put in ventilated packages. The tighter the package the better. We have found by cold storage tests that fruit that has been picked cold and paper wrapped and put in a tight package keeps longer than any other. I have peaches in cold storage now that were picked in August, and I expect to have them good at Christmas. They are paper wrapped and put in tight packages. In time, good apples and other fruit will be paper wrapped.

Mr. Stevens: Would you not pick apples on wet days?

Mr. Hale: Certainly, if I had to; but they must be dried before they are packed.

Mr. Burton: You spoke of a standard grade. Suppose our apples are graded so that the smallest apple is two and one-half inches. No. 1 could be from two and one-half inches up to four inches. Would you put these various sizes in together?

Mr. Hale: No, sir; I would size them just as we do oranges. By and by apples will be sized so that when you want a carload of them from me in Connecticut you can order so many boxes with a certain number in a box. That is the way oranges are ordered. If I order a carload of oranges from California I can say I want so many boxes of each special size and I shall know just what I am getting, for they have a standard to go by.

Mr. Burton: Then you would have to have a number for each variety of apples?

Mr. Hale: Certainly. If you sent to me for a carload of Baldwins—

Mr. Burton: I don't like Baldwins; I wouldn't have them.

Mr. Hale: Well, get Greenings or some other good variety. You could say how many you wanted in a box, and I would put them up for you.

Mr. Burton: What kind of lumber would you use in the boxes?

Mr. Hale: Any good white lumber.

Mr. Burton: How are you going to get them to come out even in the boxes if you pack them by hand and do not shake them?

Mr. Hale: We have, in our packing sheds, men who can pack peaches in about forty-five different ways in the same packages. The foreman of the packing department knows just how it should be done. If the peaches are nice and round and of a certain size he has a certain style of pack for them. Then the Belle of Georgia is an oblong peach and the style of pack is changed, but each one of these packs brings the box full finally. That problem can be worked out by packers in either apples, peaches or any other fruit.

Mr. Burton: I wish to go back to the subject of picking apples a few at a time. This is the first time that subject has been up in these meetings. My experience has been similar to yours. I have noticed that my Rome Beauties would have a number of ripe apples on early in the season, and a large number of smaller green ones. It was difficult to prevent the pickers from picking the green ones and carrying them to the sorting sheds. However, we finally did succeed in getting them to leave them on the trees. Later these apples nearly doubled in size, were of a beautiful color, and now they are the only sound Rome Beauties we have.

Mrs. W. B. Flick: I should like to know why the horticulturists have been saying so many things against the Ben Davis apples. I do not think we should disparage our own goods. Other business men do not do this. I think the Ben Davis is a good apple. Last year we had no other apples. and I don't know what we should have done without the Ben Davis.

Mr. Hale: It is because fruit growers are more honest than other people; they will tell the truth in spite of their own financial interest. If you have no other apples, and can get no others, grow Ben Davis; but the markets of the world want good apples, and somehow, somewhere, other people will grow better apples than the Ben Davis, and those will be the people who will make money. There are much better apples in the world, and very much better apples can be grown in nearly all parts of the country than the Ben Davis, and with right methods and right conditions those better apples will be offered. Whenever you offer a human being of average intelligence a Ben Davis apple you stick that in his crop and block the way for ten good apples that ought to be going down into his stomach. Whenever you offer an inferior fruit of any kind or variety you interfere with the sale of a better product. The man who has Ben Davis apples today and who will have them next year, will sell them, but he is a dangerous impediment in the way of progress, and where he is able to sell ten barrels of Ben Davis apples he might sell twenty of a better grade.

Mr. Flick: Did you ever eat any Indiana Ben Davis apples?

Mr. Hale: They were not labeled Indiana Ben Davis, because you people won't label them. However, I suppose every State thinks its own Ben Davis apples better than those grown elsewhere. The Missouri brethren are having a meeting today, and if this subject of the Ben Davis apple comes up there—as no doubt it will—I suppose they will admit that the Michigan, or the Indiana or the Connecticut Ben Davis apples are not quite up to the mark, and that the only really good Ben Davis that is grown is in the Ozark region.

Mr. Flick: The Indiana Ben Davis is the best, and I can prove it. Our commission men who handle all these apples from the different States stand by us and say we grow the best Ben Davis apples in the world. I do not say that the Ben Davis is the best apple in the world; but I say we do grow the best Ben Davis there is grown.

Mr. Hale: I was born on the banks of the Connecticut river. Doubtless some of your ancestors were born there, and probably you have heard them tell that the only shad in the world fit to eat are in that river. I had always heard that, and I always believed it until I was twenty-five years old. I suppose some of you believe it yet. As I have gone on in years I have camped on the banks of the St. John and the Savannah and the Potomac and the James and the Delaware and the Hudson, the Penobscott and the Kennebec, and I have eaten shad and have heard the old fellows tell the same old story, the one shad of all other that is fit to eat comes out of their own rivers, and to dispute with them would be just as senseless as to dispute with the secretary of this organization, as to the quality of the Indiana grown Ben Davis.

Mr. Flick: But we have gone to the people who deal in this fruit, and we take their judgment as well as our own. I have told you what they say about the matter. We have some of the best commission men in the United States, and they tell us we can raise the best Ben Davis apples that are raised in the United States. The men who visited the World's Fair and tasted our apples said our Ben Davis apples did not taste like theirs. This is a matter of taste, probably. We don't expect an eastern man to grow anything but Greenings and Baldwins, and perhaps "wooden nutmegs." We don't claim that we can meet them there, but we do say we can grow good Ben Davis apples, and we are going to grow them better every year.

Mr. Hale: He has made a point that is worth noting. He believes in Indiana, he believes in himself, and that is what makes the country what it is. I would not give much for a man who would not, at all times, stand up and express his belief that the place where he is located is the best place on earth. That is what makes the country worth living in. So

I say, God bless Mr. Flick for believing in Indiana and in the Ben Davis. I know he is wrong about the apple, but he is all right, nevertheless.

Mr. Zion: Peach growers have found their greatest rivals in the market to be the Ben Davis apple and the Keiffer pear. I have done business with Mr. Keach of this city and I would like to hear from him. He has had more experience than most men I have met.

Mr. W. W. Stevens: If Mr. Keach is present we would like to hear from him.

Mr. James L. Keach, Indianapolis: Mr. President and Gentlemen—I believe your good friend Mr. Hale overlooks one point in regard to the Ben Davis apple. I recognize the work that Mr. Hale has done, and it has given me great pleasure to have him attend this meeting. I have a man who has had the experience of almost a lifetime, and he has nearly made me poor this year traveling about and looking over the general situation and investigating the crop. He reported to me, after having gone over the situation pretty thoroughly, not excepting the good State of Connecticut, as well as Maine, New Hampshire, Massachusetts, New York, Pennsylvania and as far west as Kansas—in fact, all the principal apple growing sections of the country. Now I am entirely disinterested in what I am going to say, and I say that if Indiana did not raise apples that interested the trade I would not be interested in the work. My man, after having gone over this territory, reported to me that the finest orchard and the best fruit he saw in his travels was the orchard at Orleans, owned by Mr. Burton. He said the fruit was perfect and the quality of the best. I intended to keep an eye on those apples for the purpose of buying, but even though I did not get them, I am willing to give Mr. Burton and Indiana credit. As to the eastern varieties of apples, I agree with Mr. Hale as to the superior quality of some of them, but when he talks of a Snow, or a Baldwin, or a Greening, I will say there are localities in our State where those apples can not be produced for their commercial value. We can raise a Baldwin in Indiana that would make Connecticut turn green with envy; but our climate is so different from the Connecticut climate that the Baldwins mature too early and have not the keeping qualities of the eastern fruit. That hurts their commercial value. As to the Ben Davis apple, I consider that it has been very much slandered. It has been said here today, and rightly, that last year the Ben Davis was a very popular apple. We don't always have a crop of apples in the East, and as a general thing when their crop is a failure, we have some apples in the West. The Ben Davis, from a commercial point of view, has been found a success, and especially is that true where the orchard has been given the attention which Mr. Burton gives his. A great deal of damage has been done to the market for the Ben Davis by the slipshod manner in which they have been marketed, and the little attention that has been given them. The average Indiana grower, with a small orchard, brings

a few apples to town. He brings about everything he produces—big, little, green and ripe—and a great many people get their opinion of the Ben Davis apple from that source. As to the commercial value of the Ben Davis, I have had no Ben Davis apples on the New York market, but I get the information from a reliable source that they have been bringing as good prices there and abroad as the eastern apples, including the Baldwin. While a good portion of the trade prefers a Baldwin or a Greening or a Russet, or something of that variety of apple, when they are good, they prefer a good Ben Davis to a poor Baldwin or a poor Greening. To my own personal knowledge, Ben Davis apples sold in Kansas for as much money as New England Baldwins brought in New England. The crop of Ben Davis apples in Illinois, when they were good, brought, on an average, just about as much money as the eastern crop sold for in the orchard. Most of the orchards in Kansas sold the entire crop, and that crop brought on an average as much as the eastern orchards, which are generally sold in the same manner. For instance, the varieties in Kansas consist largely of Ben Davis, Winesaps, Missouri Pippins and Jonathans. The Jonathans brought a premium where they sold by themselves; Winesaps also; but the orchards where they sold as a whole, including the Jonathans, sold for about the same as the eastern crops. We can raise the Jonathan in this State very well. It is a native of this State, and there is a section where Baldwins and Spies can be raised successfully. The finest Baldwins and Spies and Greenings, as well as the finest Yellow Bellflowers I have seen—and I have been looking at them nearly all my life—were raised in the northern part of this State. But south of Indianapolis, or through this section here, I am sure eastern varieties of apples are not suited to the climate. In this climate they ripen too early and mature too early, and what is a winter apple in New England makes a good fall apple in central and southern Indiana.

As to the Keiffer pear, I will say that some idea may be had of the value placed upon the Keiffer pear when I say that after careful thought and consideration I have come to the conclusion that so many of them are being used that it is hurting the consumption of apples. That would indicate that they are not extremely unpopular. We sold a great many of them and the trade sold a great many. We had a great crop of Keiffer pears, not only in this State, but almost everywhere; yet they were consumed. If they were so exceedingly unpopular they would not affect the sale of apples as they did. People do use Keiffer pears and use them extensively. As to their market value, the man who raises them is best prepared to pass an opinion on that. It is true that the trade will pay more for good Bartlett pears than they will for good Keiffers, but they can not always get good Bartlett pears, and there is trade that likes the Keiffer. There is a very large consumption of Keiffers, and that consumption is so great that I am satisfied it affected the price of apples this fall. Of course, you can have an over-production of any crop, and this fall there

was almost an over-production of Keiffer pears. I feel that I am in a position to be familiar with the situation in our own State, but I think the grower must be the first judge of the commercial value of his Keiffer pears. If he finds that it has been a paying crop during the past four or five years, there is nothing in the future that would justify him in cutting down his trees. The same is true of the Ben Davis apple. In fact, I believe that the Ben Davis apple is really more popular in the markets of the world than it was four or five years ago.

President Stevens: Now we will take up the discussion of "Spraying." Mr. R. A. Simpson, of Vincennes, will read a paper on this subject. We have taken up most of the morning with a discussion of the varieties of apples, and I think it is most fitting in this connection.

Mr. Simpson then read the following paper on spraying:

SPRAYING.

BY R. A. SIMPSON, VINCENNES.

Spraying is now an old subject and one that has been hashed and re-hashed time and again; but for all that, it is an important subject and one that orchardists of the United States know little about—the fact is, we are just beginning to pick up a few facts along the line, when the whole subject is considered. For all that, when these few facts that are now known are thoroughly and economically applied to our orchards, great benefits are derived therefrom.

At the Illinois State meeting last year, and at quite a number of other large horticultural meetings, that old question, "Does spraying pay?" was not even mentioned. If there was a question about this matter, why was this not asked? Because those orchardists are convinced of the good results of spraying thoroughly. Now, since our best authorities know that it pays them, can we draw conclusions other than that it is a settled fact that we must spray and that it will pay us if thoroughly and economically done.

The most successful orchard men over the United States have, as a rule, abandoned that old question, "Does it pay to spray?" and are now studying how to spray their trees thoroughly the required number of times in the most economical manner.

Gentlemen, we might just as well stare this monster square in the face and accept the facts as they stand, and, if you will go to work at once without prejudice, but with a feeling that you are just a little behind

time on the subject, devoting your leisure hours—or lay off a few days if necessary—and study up a little about your orchard pests and the best methods to hold them in check, your orchard will be more profitable. If you do this in an honest way you will find this “monster” a monstrous friend. In fact, there is so much to be gained by spraying that one can not fully realize, when the future benefits are considered as well as the past, just how valuable it is.

Some of you who have never sprayed, and probably some who sprayed last year for the first time, will not agree with me and will point out the fact that a neighbor who had never sprayed had as good or better fruit last year than you or some other neighbor who had sprayed. That occurred in a very few instances I will admit. To those I will say that there are exceptions to all rules; but, where the one or two exceptions happened, on the whole, even last year those whose orchards were thoroughly sprayed were greatly benefited. Not only was this manifest in the last crop, but it is noticeable in the present crop. I believe that if you will examine carefully the orchards that have been sprayed the past season you will find the trees have formed more healthy fruit buds than those which received no spraying. Sprayed orchards also withstood the drouth of last year much better than those unsprayed—the same conditions prevailing. On an experimental plant in our orchard we had trees that were sprayed from three to fourteen times and it was a very noticeable fact that those trees which had received the greatest number of applications stood the drouth best, while those receiving the fewest doses suffered most. The fact is that last year was an exceptionally good one for the orchards of southern Illinois and Indiana so far as the codling moth and the scab were concerned; and, for that fact, it was a discouraging year for the man who had sprayed for the first time or the man who had been on the fence or was prejudiced against spraying. If we had no insects or fungi, why, of course, we could not kill any. Early in the season we did not know but what we would have an abundant crop of pests, and the only sure and safe way was to spray. Who of you feel discouraged when you insure your house against fire and the fire fails to visit you? Can you condemn the insurance company? No, you can not, if you are a business man; neither can you condemn spraying because the insects and fungi were not as bad last year as usual, thus making less difference between sprayed and unsprayed orchards. It is a fact that sometimes we derive more benefit from our last spraying the coming year than we did the past.

In combatting insects and fungus diseases I would advise the following steps to the man who is contemplating spraying next season for the first time and to those who have no better method:

First. Find out what insects and fungi it is that has been making your high grade apple into seconds and culls. Then go to work and plot against them (no one wants to or will admit that a little worm can get ahead of

him if he tries). The first step you take along this line is to write to the horticultural experimental stations. Tell them you would like to have some of their bulletins on orchard pests and the methods of combatting them. You help pay for the publication of these bulletins and you should let the station know you are ready to read them. Also subscribe for the *Western Fruit Grower* or the *National Fruit Grower*, or some other good horticultural paper.

Second. During the winter, any warm day when your trees are not frozen, go out and relieve them carefully of all water sprouts and surplus limbs and paint all wounds with a thick lead paint. Also burn all trimmings before spraying time arrives.

Third. Pruning will enable you to do a much more thorough job of spraying and will be one means of economical spraying aside from the other benefits derived therefrom.

Fourth. Secure, within the next year, the best pump on the market, even if it does cost a little more, because a cheap pump is often the dearest in the long run.

Fifth. Begin spraying on time and secure the purest chemicals. Make a stock solution of your lime and sulphate at least one day before you use it, and, if convenient, do not be afraid to make up enough to last a week. We slack enough to spray our whole orchard of 175 acres, when we begin, and have used it when it had been slacked much longer than ten days, with no ill effect. Be very careful, however, and do not let your lime get dry at any time.

When making bordeaux, dilute both the lime and sulphate water freely before they are poured together and thus secure, after a thorough stirring, the best possible mixture. For this purpose we use three elevated tanks which is a very convenient and economical way of mixing the solution and filling the spray tanks. By this method the very best mixture is secured and one that will stay in solution or suspension longer than when made in the ordinary way. Never be afraid to stir your solution too much.

The three-elevated-tank system is the ideal one for the commercial orchard man. However, if you are only running one outfit and do not want to go to the trouble or expense of elevating the three tanks, the following method will be found a great deal better than the old way of mixing: Elevate two barrels that have a one and a half inch hose attached to the bottom of each and be sure that the bottom of the barrels is at least four inches higher than the top of your spray tank. Put the required amount of lime for one tankful in one barrel and the right amount of sulphate in the other and fill each barrel with water. Stir each barrel thoroughly, then drop the end of each hose into a strainer through which the diluted solution of lime and copper sulphate runs into your spray tank. The liquids thus become pretty well mixed as they run through the strainer together. While the barrels are being emptied pump into the

same strainer enough water to fill your spray tank; then, after another agitation by the pump, you will have a more thorough mixture, with no additional work, than that secured by the old method.

If possible, be with the sprayers yourself all the time. Have men who can take their turns with the rod and the pump so as to keep up a high pressure constantly, even though they do have to change off every half hour. Without high pressure it is impossible to accomplish the best results.

The man who is holding the rod must be careful, thorough and take an interest in his work or he is more than worthless and will certainly insure you a failure in his work. The loss or profit of each tree he sprays is determined largely by the thoroughness of his work. To do what I call a thorough job of spraying, he must cover with a fine mist produced by high pressure the upper and lower part of every limb, branch and leaf—in fact, if he does not cover the entire surface of the tree and then stop, the tree is not sprayed, it is only partially sprayed or else oversprayed. This is the place where the largest part of the failures are made. Remember, it is not the amount you put on a tree, but the thorough distribution of the mist that counts. Apply until the whole tree, leaves and all, are completely covered with a fine mist and then stop. If you apply the spray longer than this the little drops will run together and you will not have as much solution on your tree as if you had stopped at the proper time.

Do not be satisfied with the pumper unless he is putting on enough steady pressure to make your rod vibrate and emit a frying sound. After a man has once sprayed with a good strong pressure, as mentioned above, he will not be satisfied with a low pressure.

Now, the question comes, since we must spray, how many times is it necessary? That depends altogether on the orchard, season, pests to be fought and whether or not the orchard has been sprayed the previous year. Generally speaking, if the orchard has been thoroughly sprayed at the proper time, two or three times, the past season and the next spring should be bright, sunshiny weather, there is but little danger of the scab bothering. In such a case I would be satisfied in applying the first spray just after the bloom has fallen; the second time seven days later, and the third time about the first of July. If the spring is damp before the blossoms open apply one additional application just before they open. If the orchard has never been sprayed, I certainly would give it the first application before the flower buds open and the following ones as above stated. Would use four by four by one-fourth formula for bordeaux.

The amount of interest that can be made on money invested in spraying will depend on chemicals used and the mixture of same; time and thoroughness of application and knowing how to sell the quality of fruit raised after it has been harvested.

I believe that no money invested in a bearing orchard will return a greater per cent. of interest than that spent in thorough and economical

spraying. Let me sound another word of warning to that man who honestly says, "I do not have to spray my orchard to get fine fruit." Let him not be so narrow as to think that his orchard will continue to be the exception.

DISCUSSION.

Mr. Hoffman: Coming from a section of the State where the apple crop was almost a failure, I account for the fact that I had a good crop to spraying thoroughly. I had three men working continuously for three weeks. I succeeded in raising several thousand bushels of apples in a locality where no one else succeeded in raising any.

Mr. Johnson: I want to know if you use Paris-green in your spray before the buds were open?

Mr. Simpson: Yes, sir.

Mr. Johnson: Is not the object of the Paris-green to kill insects that are not found at that time?

Mr. Simpson: Yes, but we take no chances and always use it here.

President Stevens: Mr. Kingsbury will now read a paper on

SPRAYING AS A PROFESSION.

BY J. G. KINGSBURY, INDIANAPOLIS.

I am doubting somewhat the propriety of sending out this paper I am about to read to you, in our proceedings to be read by the general public. The effect will be, if it has any, to encourage the growing of fruit by all who can spare the ground for the purpose, and by so much damaging the business of fruit growers. If all amateur horticulturists produce the fruit they and their friends consume, it will very considerably diminish the demand for the products of professional growers. When all farmers believe that they can with certainty produce perfect plums, apples, pears, etc., they will devote more space to the purpose and will soon get into the way of supplying the immediate neighborhoods with the fruits in their seasons, and thus by degrees the market towns and the nearby villages, and later on the larger and more distant markets. And so the business of the large fruit growers will become demoralized, unprofitable, and at length destroyed.

These being the possible results, is it prudent, is it proper, is it wise to give publicity to practice? Will I not be blamed rather than thanked for my effort?

It is true that the purpose of our Society is to foster the profession of horticulture in the State and to gather and promulgate information and exchange experiences to that end. Yet, are we to do this to such extent as to bring detriment to the business of the regular and faithful members of the Society, who, in many cases—a majority, in fact—depend upon it for a livelihood.

It is all very well for our Hiale Connecticut Yankee friend to come and tell us Hoosiers how to make money growing apples. It's not going to interfere with his Georgia peach business, but would we expect him to leave his comfortable eastern home at this inclement season to give us particular and precise information regarding the profitable business and so influence our minds on the subject as to incite us to organize a big peach growing syndicate to rival his company in that industry? So I think regarding the present question.

Our worthy secretary may have had this thought in mind when he refrained from publishing the notice of our meeting in yesterday morning's papers. He is not to be blamed if he had. It is like giving out trade secrets to invite the public in to hear all we know about growing, handling and marketing fruit.

But regarding this business of spraying, suppose we convince the intelligent reading farmers of the State of the possibility of growing perfect fruit in abundant quantities by means of thorough and judicious spraying by the hands of men thoroughly posted in the business and fully prepared for it, may we not expect many of them to reason with themselves somewhat after this manner:

According to these horticultural people, fruit growing is an easy and profitable industry, when carried on in a common sense and business-like manner. Orchards, it appears, need only fairly good soil, but they require some attention in the way of pruning, cultivation and spraying. These things we farmers have not heretofore attended to. We have not pruned and cultivated because we have lost our fruit on account of blight, fungous growths and insects. These can be checked only by spraying, and that we do not understand, and if we did we have not the time to do the work and carry on our other business properly. But now comes one of these theoretical fellows and persuades the State Society to encourage young men to go into the business of spraying, and shows how it would pay them to rig up and prepare an outfit for the work, and make contracts with the farmers, at so much a tree—only a few cents each—to keep their orchards well sprayed throughout the season, and insure them that so far as fungi and insects are concerned, they shall have fair crops of perfect fruit. The Society endorses the idea, and we believe there is a good deal in it. At any rate, if such a man comes along next spring, we'll let him talk us into contracting to spray our trees.

If he is going to make a business of spraying trees, he must make his work successful. He will expect our testimony to help him in making contracts next year. If he has gumption enough to run the business successfully he will study it thoroughly, will read all he can find on the subject, and will fit himself out with the best spraying apparatus, wagon, pump, barrel and spraying mixtures for the various diseases and insects, and will know what, when and how to use them all. The plan seems feasible, practicable and worthy of trial.

We can and will prune, cultivate and, if need be, thin out the fruit, for we plainly see that by the aid of proper and sufficient spraying we may expect from our orchards, small as they are, ten to twenty bushels of fine plums, twice as many pears, and from 500 to 800 bushels of apples of good varieties, one year with another. These crops of fruit will pay us more, at the prices that have ruled the past fifteen or twenty years, than any other forty acres on our farms in regular field crops. We can well afford to make the contract with the spraying man, though at a pretty high rate, at the start; he promises to reduce the price after he gets the business well established, and we see that he can afford to do so, as he will have so many more orchards to care for, if he succeeds with ours. Yes, we'll patronize the spraying man, one year, anyhow.

After writing this much, by way of introduction, I reached the conclusion that I would better drop the subject, in the interest of the professional members of the Society, and so I do.

If I were urged to say anything further, however, it would be to encourage one or two men in each county neighborhood, whose time in summer is not otherwise occupied, to fit themselves for the business of spraying for the neighbors who have small orchards, as most farmers do, and make contracts at fair rates for spraying them, believing that it would become a fairly profitable business and highly satisfactory to the farmers and their families.

Mr. Keach: The reference to peaches calls to my mind that the apple is not the all-important fruit in the State of Indiana. In Brown County we have a peach orchard that will compare favorably with anything in the State of Georgia. It belongs to an Ohio man, Mr. Freeman. Peaches can be raised and marketed in Indiana successfully.

Mr. Hale: I would suppose from the way Mr. Kingsbury talked that I would not tell anything that would interfere with my own business. There is room enough in the world for everybody, and one reason I am proud of being a horticulturist and of associating with horticulturists, is that they are an open-handed set of men. They understand that by giving they will get more. I was invited to talk about apples, but I would just as soon talk about peaches.

I think that Mr. Keach has good horse sense. He speaks for Ben Davis apples, but he understands his business; he has to deal with you,

and he wants to make you feel good. He made one good point, however, when he said that down here in southern Indiana, in the rolling land you have there, you have the finest peach land in America. All it wants is handling with the peach idea. A man who will take a love of the business with him and go there and study the conditions, get the right varieties of trees and take up the idea of spraying, and all the ideas that are free and open to everybody, will find a fortune there, besides a heap of fun. Don't wait to have people from Ohio come here and take up the land and carry out these ideas. Do it yourself; keep the money at home! That land in Southern Indiana will produce fruit just at the right season to be a sort of middle ground between the extreme South, where the early peaches come from, and the central North or farther North, where the main supply of September peaches come from. This southern Indiana hilly country is the ideal spot for growing the peaches for this season that fits in between the North and the South. I don't know of any other locality in America I would rather go into, if I were going to put in another peach orchard, than the rolling counties of southern Indiana. There is a fortune in it.

The convention was then adjourned to meet at 1:30 p. m.

FOURTH SESSION.

Thursday Afternoon, December 4, 1902.

The fourth session was called to order at 1:30 p. m. by President Stevens.

Secretary Flick: It has been stated by Mr. Burton that a number of growers who have fruit on exhibition here think it would be a good thing to put it on exhibition again so that the coming Legislature could see it. It is desired that all the exhibitors who so desire give consent before the fruit is removed. Mr. Burton would like to know at once whether they will give the fruit for this purpose or not. Mr. Keach, who has control of considerable cold storage room, says he will keep the fruit for us free of charge if we pack it for that purpose, and he will deliver it to any one the Society will send after it at any time.

Mr. Burton: I made the suggestion so that we might take it up at this session. I wish also to speak of the St. Louis Exposition fruit exhibit. I would like to have every one listen to what I am going to say. If we make a display of fruit at the St. Louis Exposition, in 1904, there must be some reason for it. Why should we make a display of fruit? For the reason that we make a display for the honor of it. We feel proud when

we are able to show something that is better than other States can produce. It certainly should be a matter of pride to every fruit grower in Indiana to make an exhibit there. Undoubtedly we can make a better exhibit than many of our neighboring States. Another advantage to be gained by making a good display is the advertising we will get from it. You all know my fruit has been spoken of all over the State and outside of the State. Do you not think that gives me an advantage in selling? Winter before last I sold two barrels of my Winesaps for six dollars a piece to a man who did not know me, but who saw my apples on exhibition at the Paris Exposition. If we make a fine exhibit, people will find out that we grow good apples in Indiana, and that will help our markets. You know, as well as I do, that it is a fact that with all our facilities for growing fine fruit we are neglecting our opportunities, and it seems we need some foreign blood to come in here and give us some examples of growing fine fruits. We should not wait until our Indiana land is taken up by syndicates who will grow fine fruits and take all the profits to some other place, and all we would get out of it would be the pay of day laborers. We want to keep the wealth coming from these lands in Indiana. I have had a number of letters this past season from people inquiring about the facilities of the southern Indiana lands for growing fruits. Let us keep them for Indiana horticulturists if we can, and by these exhibits help to demonstrate what fine fruits can be grown in this State.

Of course, it will cost money to make a display such as we wish, and the Society, with its present income, is unable to make a display of this kind. If we show small fruits the cost will be very large. The apples and pears and peaches can be shown without a large amount of money. If we are able to make a good display it will have to be done through an appropriation by the Legislature. We should do our part toward showing the Legislature why this appropriation should be made. I suggest, as one way of securing their attention, to give them the fruit we have on exhibition here, not as a bribe, but to show them what our Indiana fruit is like. Mr. Hits, who has a large display, proposes to take his and all we wish to send him and take care of it in his cold storage room. Mr. Keach proposes to do the same thing. I can furnish a barrel of fancy Winesaps, if it is necessary, to add to the display, and perhaps some of you can send some other varieties. I assure you a nice, big, red apple will help put any one in a good humor.

I have presented this matter and the Society can take any action it wishes. I would suggest that we present this fruit to the members of the Legislature when we can get them together at some time for a few minutes. We should get some fellow who is a good talker, but not windy, to present the case to them.

Mr. Burton: I move that the Society request the exhibitors to make this donation of the fruit to be presented to the members of the Legislature.

The motion was seconded and carried.

Mr. Burton: If we intend to make an exhibit at the St. Louis Exposition we must be up and at it in earnest and with some of the vim the Connecticut man shows. We ought to have a collector in every county in the State. I want to volunteer to represent the counties of Lawrence and Orange. I move that the secretary appoint in each county in the State a man to make this collection.

The motion was seconded and carried.

Secretary Flick: I would suggest that all counties that are represented here today by members send me the names of persons who will best do this work.

President Stevens: We have with us today Mr. Henry, our State Librarian, who will occupy the time that had been assigned to Mr. Barnes. He comes here to talk about the distribution of the State Library among the people throughout the State.

Mr. Henry: I simply want to speak upon this subject briefly. There will be a bill presented before the next Legislature to permit us to lend individual books to individual responsible citizens over the State. Other States are doing this. Our State Library is an old one, as you know. It was formed first in 1825. We have a collection now of more than 33,000 volumes. Many of these books you would not want; some of them you would. We hope to have books soon that practically everybody in the State will care for. A bill will be presented before the Legislature asking them to so modify the law that we can lend the books in this way. If this matter interests you I wish you would carry that interest to your legislators and ask them to do what they can in this line. I shall see them and ask them about it, but they will feel that this is my specialty and they will not know whether the people of the State want it or not. But if from one to six men will go to a legislator and asked to have his support for this law, he will take it as a matter that affects his constituency and he will pay more attention to it than if I spoke to him about it a hundred times.

Other States are lending books in this way. They lend individual books to individual citizens. We have a great many books in the library, and expect to have a great many more, that will be of interest to the farming communities. For instance: As soon as our money is sufficient to do so, we will complete the records of registered stock, and then if you wish to see them at your homes, you can do so. If you live a hundred

miles from Indianapolis, and wish to see what is in one of these books, the present law compels you to come here to see it, or else buy some publication that will give you this information. By this method proposed the book can be sent to you with no expense except for postage. The library in this way may be made extremely useful by having the law amended. This matter may not interest you. However, if it does, and if you think it will be of value to you, speak to your legislators before they come here in January, and then when the matter comes up they will know you are interested in it and want it.

What I am trying to do is this: I am trying to take the State Library to the people. I have been in the library now for five years and have made it useful to people who can come to it; now I want to make it useful to the people to whom it can go. If the law is modified we will print lists of books that can be sent out, and every citizen will know just what we have here and how to obtain the books. We have, of course, in the library many rare and valuable books and books that could not be duplicated if lost. Of course, we will all agree that books of that kind should not be loaned. There will be a class of books always that we can not loan, but the majority of them are of such a character that we can loan them. We will distribute the lists as fully as possible, and every citizen will know what we have and how to obtain it.

Mr. Kingsbury: It seems to me that this matter is impracticable from the side of cost, unless special rates can be secured for sending the books. The cost of the heavier books would be ten cents each way, or more. What arrangements are contemplated in regard to that matter?

Mr. Henry: At present there are only the regular postal rates and the express rates. That may be a difficulty, yet my only thought is this: That it is better, if you want a book, to have it sent to you at a cost of twenty cents rather than have you come to the city to consult it. My idea is that the State would be doing a legitimate business if it would pay the transportation. But, so far as I know, no State does that. Indiana may take the lead in that, if that is what you like. The question is now, Can we better afford to pay transportation charges or buy the book, or go without? The State Librarian of Wisconsin said the books were being loaned over the State, but still they were limited by the cost of transportation. There is an effort made to get a law through Congress giving us a book rate at about a cent a pound. At that rate a book would go through the mails about as cheap as a letter would. If a person wants a book it is certainly cheaper to pay transportation on it than to do without it or buy it or come to Indianapolis, when he only wants it for a few hours. Of course, at the present time, if you want a little matter of information, that can be gotten from the State Library and that can be copied without a great effort, we will send it.

Professor Troop: Since I gave my report yesterday, one man has come to me and has stated that he is very sure he has the San Jose scale in his orchard. He lives in a section of the State from which I have not received information that the scale existed there. I am very glad to get this information, of course, but he has been keeping quiet all this time thinking he could manage it himself. That is wrong, entirely so. The main object in appointing the State Entomologist was that he should look after these things and destroy them, but I can not do that unless you help me. When you think you have San Jose scale, or when you think your neighbors have it in their orchards, let me know about it so that I can hunt it up. If you keep this information from me, I can not do anything. If any of you know, or think you know, that either yourselves or your neighbors have this scale in your orchards, let me know at once and I will try and run it down. I can not do it if you keep the thing hidden.

Mr. Little: Is not a man liable for not reporting the scale?

Professor Troop: No; he is liable if he does not apply the remedies after he is notified.

Mr. H. W. Henry: I desire to offer a resolution before we begin the election of officers. I think this resolution will give us more hands to do the work of the Society.

I move that Article III of the Constitution be changed so as to read, "Thirteen vice-presidents, or one from each Congressional District," and to change all sections of the By-Laws so as to conform to the change of Article III of the Constitution.

The motion was seconded.

Mr. Henry: I have the State reports of the Horticultural Societies of every State west of the Ohio river, and every one of these States has a vice-president in every Congressional District in the State, making a good working force. Take Minnesota, for example. You would not say that Minnesota was a good fruit growing State at all, and yet they have a society there of 1,200 members, and they have a vice-president in every Congressional District.

Mr. Burton: That will be going back to an old provision of this Society. I do not know why it was changed.

Mr. Little: We thought it was not necessary to have so many vice-presidents.

Mr. Burton: That makes a very cumbrous machine for so small a membership as we have. If we pay the expenses of the vice-presidents, as we do now, when they attend our meetings, it will be a burden. I see no necessity for making this change.

Mr. John Tilson: Should not all resolutions and all amendments to the Constitution be in writing before they are considered?

Secretary Flick: The secretary holds this resolution in writing.

Professor Troop: The present by-laws require each vice-president to make an annual report to the Society. Has that requirement been complied with this year? I have heard no reports from the vice-presidents this year.

Secretary Flick: They have made no reports so far this year. They made no reports last year unless you had them.

Mr. J. C. Grossman: I handed in a report.

Mr. Tilson: I understand the vice-presidents have their expenses paid to every meeting. If we have thirteen vice-presidents it will cost a couple of hundred dollars to get them all here, and they will always come from the farthest parts of the earth if their expenses are paid.

Mr. Howland: Then I move to amend that all vice-presidents serve without pay.

Mr. Henry: For the past two or three years I have been studying the reports of the other State societies, and find that this is their rule. They have vice-presidents from each Congressional District. We all know that the more people we can interest in a society the better the membership will be. If four men have their expenses paid now, and thirteen working for the society can not get in enough new members to pay the extra expense, let them all come without pay. The majority of us do that now.

Mr. Hoffman: We used to have a vice-president from each Congressional District years ago and they served without pay. I am opposed to paying them now, especially if they do not make reports. If they make reports, pay them; if they don't, shut them off.

Mr. Little: I think I served as vice-president years ago and I do not remember of receiving any pay.

Mr. Johnson: I doubt seriously the propriety of passing this resolution. You all know that we now get an appropriation of \$1,000 a year from the State. If you knew how hard it was to get that appropriation you would not want to make more expense for this Society. It will cost a great deal of money to pay the expenses of thirteen vice-presidents, and if their expenses were not paid, they would not be here. They are not all here now, even though provision is made for paying their expenses.

Mr. Grossman: That statement about the vice-presidents not being present might give a mistaken impression. All the vice-presidents are here except one. The absent member may have a good excuse for not being present. They were all here last year.

President Stevens: There is an amendment before the house.

Mr. Henry: I shall accept that amendment to my resolution.

A vote viva voce was taken, and President Stevens announced that the resolution was carried.

Professor Troop: I rise to a point of order. There must be a two-thirds vote to carry an amendment to the Constitution.

A division was called for. The vote was 34 in favor of the resolution and 12 opposed to it.

President Stevens: The resolution is adopted. We will now proceed to the election of officers.

Question: How will the vice-presidents be elected?

Professor Troop: The Constitution and By-Laws say plainly that the first elected is designated as "First Vice-President." One of the duties of the first vice-president is to preside in the absence of the president. The Society should remember this in selecting a first vice-president and select one with regard to his fitness to preside over these meetings in case the president is not able to be present. We are not all fitted for that duty.

President Stevens: Of course, we all understand that the first vice-president shall represent his Congressional District, and that there shall be only twelve other vice-presidents.

ELECTION OF OFFICERS.

Mr. W. W. Stevens, Salem, was nominated for president.

There being no other nominations, on motion the secretary was authorized to cast the vote of the whole Society for Mr. Stevens for president.

Secretary Flick cast the vote, and Mr. Stevens was declared duly elected president for the ensuing year.

As there was but one nominee for each office, the same method of casting the ballot was followed in each case.

The following officers were then elected:

First Vice-President—H. H. Swaim, Thirteenth Congressional District.
Secretary—W. B. Flick, Lawrence.

Treasurer—Sylvester Johnson, Irvington.

Executive Committee—Professor James Troop, Lafayette; Walter S. Ratliff, Richmond; E. Y. Teas, Centerville.

Vice-Presidents:

First District—W. J. Ritterscamp, Princeton.

Second District—W. C. Reed, Vincennes.

Third District—R. A. Troth, Orleans.

Fourth District.—W. S. Young, Franklin.

Fifth District.—D. B. Johnson, Mooresville.

Sixth District—Caleb W. King, Richmond.

Seventh District—J. J. Milhous, Valley Mills.

Eighth District—A. W. Shoemaker, Daleville.

Ninth District—D. F. Maish, Frankfort.

Tenth District—H. W. Henry, Laporte.

Eleventh District—G. N. Moyer, Laketon.

Twelfth District—J. G. Grossman, Wolcottville.

Mr. Burton: I move that these vice-presidents be instructed to make twenty-minute reports for the next year and read them here.

Mr. Swaim read the following report of the Committee on Awards:

AWARD OF PREMIUMS ON FRUIT.

Five Varieties Market Apples:

Southern Indiana—Joe A. Burton, first; J. E. Hitz, second.

Central Indiana—W. S. Ratliff, first; Mrs. Demaree, second; W. B. Flick, third.

Northern Indiana—L. M. Buker, first; J. E. Hitz, second; C. P. Bradley, third.

Plate Baldwin—C. P. Bradley, first; J. E. Hitz, second.

Plate Ben Davis—Chris. King, first; J. M. Zion, second.

Plate Grimes Golden—Joe A. Burton, first; W. S. Ratliff, second.

Plate Indiana Favorite—W. S. Ratliff, first.

Plate Jonathan—Joe A. Burton, first; W. B. Flick, second.

Plate Mann—C. P. Bradley, first; J. W. Apple, second.

Plate Missouri Pippin—J. E. Hitz, first; J. H. Hale, second.

Plate Moore's Sweet—W. B. Flick, first; Mrs. Demaree, second.

Plate Northern Spy—C. P. Bradley, first; Mrs. Demaree, second.
 Plate Pewaukee—C. P. Bradley, first.
 Plate Rambo—Mrs. Demaree, first; Mrs. Demaree, second.
 Plate Rawles Janet—Joe A. Burton, first; W. B. Flick, second.
 Plate Rock Island Greening—C. P. Bradley, first; J. E. Hitz, second.
 Plate Rome Beauty—Joe A. Burton, first; J. E. Hitz, second.
 Plate Smith's Cider—W. S. Ratliff, first; Mrs. Demaree, second.
 Plate Stark—J. M. Zion, first.
 Plate King—F. M. Buker, first; J. E. Hitz, second.
 Plate Fallawater—J. E. Hitz, first; F. H. Buker, second.
 Plate Vandevere—J. E. Hitz, first.
 Plate Wagener—F. M. Buker, first; J. M. Zion, second.
 Plate Westfield—J. E. Hitz, first.
 Plate White Pippin—W. B. Flick, first; W. S. Ratliff, second.
 Plate Willow Twig—W. B. Flick, first; J. E. Hitz, second.
 Plate Winesap—Joe A. Burton, first; W. S. Ratliff, second.
 Plate Roxbury Russet—J. E. Hitz, first; F. M. Buker, second.
 Plate English Russet—F. M. Buker, first; J. E. Hitz, second.
 Plate Hubbardston—J. E. Hitz, first; C. P. Bradley, second.
 Plate Lawver—J. E. Hitz, first.
 Plate Clayton—E. B. Davis, first; J. E. Dinsmore, second.
 Plate York Imperial—A. W. Shoemaker, first; F. M. Buker, second.
 Plate Largest Apples—J. M. Zion, first; Chris. King, second.
 Collection of Apples—W. B. Flick, first.
 Plate Keiffer Pears—D. H. Goble, first; J. J. Milhous, second.
 Plate Angouleme—J. E. Hitz, first; W. B. Flick, second.
 Plate Anjou—H. J. Hale, first.
 Plate Orange Quinces—J. E. Hitz, first.
 Plate Champion Quinces—J. E. Hitz, first.
 Collection Persimmons—Jas. A. Little, Cartersburg, first.
 Collection Nuts—Jas. A. Little, Cartersburg, first.
 Display of Carnations—Mrs. W. B. Flick, first.
 Mixed Cut Flowers—Mrs. W. B. Flick, first.

On motion, duly seconded, the report was adopted as read.

Professor Troop: I would like to make a motion so that the members will know the rules that are to govern this Society.

I move that hereafter the rules governing the State Fair awarding of premiums be the rules of this Society, and that the same be strictly adhered to. Seconded.

President Stevens: Do you intend by that motion to change the provision that no one but members of this Society can receive premiums?

Professor Troop: No, sir; that provision is not affected by my motion.

Mr. Hobbs: The rules provide that the exhibit shall be the product of the exhibitor—that the exhibitor shall be the grower of the fruit. In awarding State Fair premiums this has been ignored, and on account of precedent we have been obliged to ignore it here today. If this Society wants to adhere to this rule of excluding all fruit that is offered for exhibition in the name of others than the grower they can provide that each exhibitor shall certify that the fruit he exhibits was grown by himself.

Professor Troop's motion was adopted.

Mr. Zion: The Committee on President's Address is ready to report.

Indiana Horticultural Society: Your Committee on President's Address beg leave to report that we have carefully examined the entire address and consulted other members in reference to the same. We are convinced that all its observations and recommendations on horticulture and forestry conditions are live questions of the hour, and will secure for his address a place among the best addresses ever delivered to our Society, and will do much toward increasing interest and membership in our Society, if given a wide circulation, and we hereby ask that it be accepted as a whole.

We further recommend that 3,000 copies be printed in pamphlet form and be distributed by our secretary through all County Horticultural and Agricultural Societies, all State institutions, superintendents of schools, township trustees, etc.

Respectfully submitted.

J. M. ZION,
AMOS GARRETSON.

Mr. Zion: If we are careful in the expenditure of our money for printing, I think we will have enough left to print the president's address for distribution. This will call special attention to the Horticultural Society. The ——— establishment in this city offers to print 2,000 for six dollars. The ——— company wanted twenty dollars for printing 2,000. I think this report should be printed and I am sure we have a secretary who will see to its distribution.

The motion to adopt first clause of the report of committee carried.

It was moved and seconded that 3,000 copies of the President's address be printed for distribution.

Mr. Burton: I don't think that is necessary. I do not understand why this special expense should be incurred. I would rather spend the money in getting out a large number of copies of the whole proceedings. This would be establishing a dangerous precedent. The next president would

be sure to want his message printed, and the expense might be run up to fifty dollars. A man who has so much to do as our secretary can not mail 3,000 copies of a document without getting some pay for it.

President Stevens: If you do not insist upon the last clause of the report being adopted, we can leave that out.

Mr. Zion: I think we should get out of the old rut we are in and get new members and blood into the Society. Let us not be afraid of such a trifling expense as this will be. I know if I had 1,000 copies of this address, I could go to work and increase the membership of this Society greatly. I don't want to lose one of the old members, but I think we should have more young blood. I shall change it and say 2,000 copies instead of 3,000. I should not ask Mr. Flick to do all the work of mailing. Let us all help scatter it over the State. If it will establish a precedent for future Presidents of this Society, let us establish it. When I get to be President I shall spend lots of time and money in getting up a report, if you will distribute it in this way.

Mr. Hobbs: This Society is a beneficiary of the State, and all State printing must be done by the State printer and by order of the State Printing Board. We can not have printing done outside.

Mr. Johnson: This would have to be paid by the Society from the membership fees.

President Stevens: Do you insist on this motion?

Mr. Zion: I do.

A vote was taken, but the motion was lost.

The following report of the Auditing Committee was read by Mr. Thomas:

REPORT OF AUDITING COMMITTEE.

We, the undersigned Auditing Committee, having carefully examined the books, accounts and vouchers of the Secretary and Treasurer, find them correct and agreeing with their reports in every particular.

L. B. CUSTER,
SNEAD THOMAS.

On motion the report was received as read.

President Stevens: Mr. E. D. Williams, who is on the program for a paper on "A Fruit Package Law for Indiana," is unwell, but his brother will represent him.

Mr. Williams: While I am not engaged in business at the present time, for thirteen years I wrestled with this subject of packing fruit. Of course, the packing of fruit has a great deal to do with the selling of it. A number of years ago the States of New York and Michigan vied each other for the markets of this State. New York had largely the lead of Michigan in the fight. We bought apples then as we do now, by the barrel. New York State had a barrel that they called two and one-half bushels; Michigan had a barrel that they called three bushels. But the New York barrels began to shrink until it got so you could put a hoop on one end and drive it across to the other. Michigan, about that time, passed a law defining what a barrel of apples should be. Then the fight began in earnest. Michigan had a regular size barrel; New York had anything that was put up in staves. It wasn't two years until New York was driven out of the State by their packages. Michigan took the field, not because they had better fruit, but simply because they brought to the State an honest package. The snide package business has prevailed to quite an extent in this State. Last summer I went to a fruit dealer on the market and asked him what he was getting for strawberries. He said so much a quart. I picked up a box and told him I thought he had it wrong side up. He said he thought the box would hold a quart. I asked for a quart measure. When he attempted to measure them he found that it took three boxes to make two quarts. When I was in the business it was customary for the grower to look for the man who made the smallest boxes. Then this man came in competition with the man who wanted to give you an honest quart box. I believe one of the wisest things this Society could do would be to go before the Legislature and ask for a uniform package law. A short time ago an ordinance was passed in this city providing for a city weigher and sealer. What for? To prevent these snide measures that are coming up all the time to deceive the people. A man who will come with a good, honest, fair and square package, one that will hold a bushel of potatoes, a quart of berries or three bushels of apples, will not have much trouble in getting his goods before the public. Often, people buy apples here on the streets, and will find on measuring them at home that they have received only three pecks for a bushel. I think the measures should all be sealed, and then when the fruit dealers come into the market it will be only a question of the relative quality of the fruit as to the price it will bring.

The interrogatory is put in the program, "Ought Indiana to have a Uniform Fruit Package Law?" I answer, yes. By all means have a uniform package. It can not work to the disadvantage of any man in this Society, nor to any man outside, but it certainly will be to your

interest. I say this from an experience of thirteen years in the business of handling fruit. This Society should put itself on record for a uniform package, and then go to the Legislature and ask for a law. The manufacturers of berry boxes all over the country have been catering to the trade that handles snide packages. I handled goods here before there was a berry box in the country. In those days we used the old two bushel stand with a half bushel in a drawer. They began to shave those toward the last. Finally, they were abandoned, and then came the berry crate, the handiest and best way we can handle them. Michigan took hold of this matter, and they have a uniform package law for the sale of their goods. The State of Indiana has been lax in this respect. As this Society represents the fruit interests of the State of Indiana, you will have to answer the question on the program in the affirmative, and try to have the Legislature pass a bill compelling all the people who are making packages to have a standard or uniform size. Then when you place your fruit before the public they will know they are getting what they pay for and are not deceived. I believe this is a very important matter.

Question: Do you recommend a three-bushel barrel?

Mr. Williams: No; the Michigan barrel is what is called a flour barrel, and it only holds two bushels and three pecks; but the way fruit growers press and pack them they hold three bushels.

There is usually a good deal of discussion on the subject of keeping apples. I heard, during the discussion here, some things that were said against the Ben Davis. I have a number of Ben Davis apple trees in my yard. Last year I tried a new plan for keeping them. I put them in the yard and covered them with leaves. We kept the leaves over them until after the first of January. The apples froze solid. I did not have any rotten or bad apples of any kind among them, and they were crisp and nice and fresh until they were all used up. There are very few apples that will stain or color when they are frozen. The Rhode Island Greening will. The Red Baldwin will not. Your apples will usually come out nice and fresh if treated in this way.

Returning to the subject of packing and styles of packages. I think early apples should be packed in packages holding about a peck. For later apples a package less than a barrel is not necessary. Barrels are easily handled, but in the summer time people will want a smaller package. Fall apples can not be carried long without spoiling. Baskets now are coming into use much more than boxes. We used to handle them in one-third bushel boxes. Apples and peaches from Southern Indiana formerly came in this package. Michigan has introduced the baskets, largely, and they are getting to make them in snide sizes. I think this should be regulated, and if you attempt to have a bill drafted, have

it drawn so that any snide sizes of baskets, boxes or packages of fruit coming into the State can be confiscated.

Mr. Swaim: Does the commission man, or the groceryman or the customer buy berries, when they buy them by the crate or box, understand that they are getting a quart in a box? Or do they just buy a crate or a box?

Mr. ———: I happen to know that most of the berries marketed in this market measure twenty-four quarts to the crate. The marketmen sell them by the quart and save the boxes and crates. They make from twenty-seven to thirty quarts of berries out of a crate. Don't lay all the blame on the fruit growers; it is the middleman who is usually at fault.

Professor Troop: I move that it is the sense of this Society that the State of Indiana should have a uniform fruit package law.

The motion was seconded by Mr. Flick and carried.

Professor Troop: I move that a Legislative Committee be appointed and that this matter be referred to it.

The motion was seconded and carried.

President Stevens appointed as such Legislative Committee, Sylvester Johnson, J. M. Zion and J. L. Keach.

Mr. Zion: I move that this Society instruct the Legislative Committee to ask the coming Legislature for an appropriation of \$3,000, instead of \$1,000. Seconded.

Secretary Flick: I would suggest that we make no public exhibition of our needs, but that this question be left open for the Committee to decide on. We all know we ought to have a larger appropriation than \$1,000. This year we ought to have more on account of the Louisiana Purchase Exposition.

Mr. Johnson: We should have more than \$1,000. The State Board of Agriculture has an appropriation of \$10,000, and we are doing at least one-third of the work they are. We don't pay \$1,000 for a horse race, but we pay out money for fruits.

The motion to instruct the Committee was carried.

Mr. ———: It seems to me the action upon the President's report was not left in very good shape. I move that we reconsider the vote on the report of the Committee on President's Address.

The motion was seconded and carried.

It was moved and seconded that so much of the report of the Committee as relates to publishing the President's address be omitted, and the balance of the report be fully concurred in.

The motion was carried.

The Committee on Resolutions announced that it had no report to make.

Mr. Zion: By permission I would like to read a letter from the Secretary of the American Apple Growers' Association.

Permission was granted, and Mr. Zion read the following:

(The letter here mentioned never reached my hands.—Secretary.)

President Stevens: One part of our program has been omitted for want of time. A paper on "Fire Blight" and a letter to the Magazine of Horticulture, by Henry Ward Beecher, read before the Indiana Horticultural Society and published in the Magazine of Horticulture in 1844, was to have been read here today. Is it the wish of the Society that we incorporate it in our report?

On motion of Mr. Zion, duly seconded, it was ordered that the paper be incorporated in the report.

The meeting then adjourned sine die.

HENRY WARD BEECHER AS AN HORTICULTURIST.

[Hon. W. H. Ragan, formerly of this State, but now of Washington, D. C., has kindly furnished these two interesting letters, from the pen of Henry Ward Beecher, to be read at our Annual Meeting, December 3-4, 1902.]

A series of interesting articles, written by the Rev. Henry Ward Beecher, to the Magazine of Horticulture, of Boston, in the early forties, when he was pastor of the Second Presbyterian church, at Indianapolis, Ind., will prove to be most interesting reading, for they show how earnestly this gifted man scanned every subject that for a time engaged his attention.

In the January number of the Magazine of Horticulture for 1845, we find the second of these articles with the following introduction: "I am induced to send you some remarks upon the condition of things in this State, in horticultural matters, from observing your disposition

to make your magazine, not merely a record of specific processes, and a register of plants and fruits, but also a chronicle of the yearly progress and condition of the horticultural art. I should be glad if I could, in any degree, thus repay the pleasure which others have given me through your numbers, by reciprocal efforts.

/ INDIANA HORTICULTURAL SOCIETY.

Horticultural Society's Fair. This is held annually on the 4th and 5th of October. Experience has shown that it should be earlier, for, although a better assortment of late fruits, in which, hitherto, we have chiefly excelled, is secured, it is at the expense of small fruits and flowers. The floral exhibition was meager—the frost already having visited and despoiled our gardens. The chief attraction, as in an agricultural community it must long continue to be, was the exhibition of fruit. My recollection of New England fruits, after an absence of more than ten years is not distinct, but my impression is, that so fine a collection of fruits could scarcely be shown here. The luxuriance of the peach, the plum, the pear and apple, is such, in this region, as to afford the most perfect possible specimens. The vigor of fruit trees, in such a soil and under a heaven so congenial, produces fruits which are very large without being coarse-fleshed, the flavor concentrated and the color very high.

It is the constant remarks of emigrants from the east, that our apples surpass those to which they have been accustomed. Many fruits which I remember in Connecticut, as light colored, appear with us almost refulgent. All summer and early fall apples are gone before our exhibition; but between seventy and a hundred varieties were exhibited. We never expect to see finer. Our most popular winter apples are: Yellow Bellflower, White Bellflower (called "Detroit" by the gentlemen of the Cincinnati Horticultural Society, but for reasons which are not satisfactory to our mind. What has become of the White Bellflower of Cox, if this is not it?); Newton Spitzenberg, exceedingly fine with us; Canfield, Jennetin or Neverfail, escaping spring frosts by late blossoming, very hardy, a great bearer every year; the fruit comes into eating in February, is tender, juicy, mild and sprightly, and preferred with us to the Green Newton Pippin, keeping full as well, bearing better, the pulp much more manageable in the mouth, and the apple has the peculiar property of bearing frosts, and even freezing without material injury; Green Newton Pippin, Michael Henry Pippin (very fine), Pryor's Red, in flavor resembling Seek-no-further; Golden Russet, the prince of small apples, and resembling a fine Butter pear more nearly than any apple in our orchards, an enormous bearer, some limbs exhibited were clustered with fruit,

more like bunches of grapes than apples; Milan, favorite early winter; Rambo, the same. But the apple most universally cultivated is the Vandervere Pippin, only a second or third rate table apple, but having other qualities which quite ravish the hearts of our farmers. The tree is remarkably vigorous and healthy; it almost never fails in a crop; when all others miss the Vandervere Pippin hits. The fruit, which is very large and comely, is a late winter fruit, yet swells so quickly as to be the first summer cooking apple. If its flesh (which is coarse) were fine, and its (too sharp) flavor equaled that of the Golden Russet, it would stand without a rival, or near neighbor, at the very head of the list of winter apples. As it is, it is a first rate tree, bearing a second rate apple. A hybrid between it and the Golden Russet, or Newton Spitzenberg, appropriating the virtues of both, would leave but little more to be hoped for or wished. The Baldwin has never come up to its eastern reputation with us; the Rhode Island Greening is eaten for the sake of "Auld Lang Syne;" the Roxbury Russet is not yet in bearing, instead of it several false varieties have been presented at our exhibitions. All the classic apples of your orchards are planted here, but are yet on probation.

SEEDLINGS NOT DESIRABLE.

Nothing can exhibit better the folly of trusting to seedling orchards for fruit, for a main supply, than our experience in this matter. The early settlers could not bring trees from Kentucky, Virginia or Pennsylvania, and, as the next resort, brought and planted seeds of popular apples. A later population found no nurseries to supply the awakening demand for fruit trees, and resorted also to planting seed. That which at first sprang from necessity, has been continued from habit, and from an erroneous opinion that seedling fruit was better than grafted. An immense number of seedling trees are found in our State. Since the Horticultural Society began to collect specimens of these, more than one hundred and fifty varieties have been sent up for inspection. Our rule is to reject every apple which, the habits of the tree and the quality of the fruit being considered, has a superior or equal already in cultivation. Of all the number presented, not six have vindicated their claim to a name or place, and not more than three will probably be known ten years hence. While then, we encourage cultivators to raise seedlings, experimentally, it is the clearest folly to reject the established varieties and trust to inferior seedling orchards. From facts which I have collected, there has been planted during the past year, in this State, at least 100,000 apple trees. Every year the demand increases. It is supposed that the next year will surpass this by 25,000.

PEARS IN INDIANA AND THE WEST.

In connection with apple orchards, our farmers are increasingly zealous in pear cultivation. We are fortunate in having secured to our nurseries not only the most approved old varieties, but the choicest new pears of British, Continental or American origin. A few years ago to each one hundred apple trees, our nurseries sold, perhaps, two pear trees; now they sell at least twenty to a hundred. Very large pear orchards are established, and in some instances, are now beginning to bear. I purchased William's Bon Chretien (Bartlett) in our market last fall at seventy-five cents a bushel. This pear, with the St. Michaels, Beurre Diel, Beurre d' Aremberg, Passe Colmar, Duchesse d' Angouleme, Seckel, and Marie Louise, are the most widely diffused, and all of them regularly at our exhibitions. Every year enables us to test other varieties. The Passe Colmar and Beurre d' Aremberg have done exceedingly well. A branch of the latter, about eighteen inches in length, was exhibited at our fair, bearing over twenty pears, none of which were smaller than a turkey's egg. The demand for pear trees, this year, has been such that our nurseries have not been able to answer it, and they are swept almost entirely clean. I may as well mention here that, besides many mere neighborhood nurseries, there are in this State eighteen which are large and skillfully conducted.

PRICE OF NURSERY TREES

The extraordinary cheapness of trees favors their cultivation. Apple trees, not under ten feet high, and finely grown, sell at ten, and pears at twenty cents, and in some nurseries apples may be had at six cents. This price, it should be recollected, is in a community in which corn brings from twelve to twenty cents a bushel; wheat sells from forty-five to fifty; hay at five dollars the ton. During the season of '43-'44, apples of the finest sorts (Jennetin, Green Newton Pippins, etc.), sold at my door, as late as April, for twenty-five cents a bushel, and dull at that. This winter they command thirty-seven cents. Attention is increasingly turned to apples for exportation. Our inland orchards will soon find an outlet, both to the Ohio river by railroad, and the lakes, by canal. The effect of such a deluge of fruit is a subject of some speculation. It will diminish the price but increase the profit of fruit. An analogous case is seen in the Penny Post system of England.

A PREDICTION NOW VERIFIED.

Fruit will become more generally and largely an article, not of luxury, but of daily and ordinary diet. It will find its way down to the poorest

table, and the quantity consumed will make up in profit to the dealer what is lost in lessening its price. A few years and the apple will be a matter of reckoning by farmers and speculators just as is now the potato crop, the pork, etc. Nor will it create a home market alone. By care it may be exported with such facility, that the world will receive it as a part of its diet. It will, in this respect, follow the history of grains and edible roots, and from a local and limited use, the apple and the pear will become articles of universal demand. The reasons of such an opinion are few and simple. It is a fruit always palatable, and as such, will be welcome to mankind, whatever their tastes, if it can be brought within their reach. The Western States will, before many years, be forested with orchards. The fruit bears exportation kindly. Thus there will be a supply, a possibility of distributing it by commerce, to meet a taste already existing. These views may seem fanciful—may prove so, but they are analogical. Nor, if I inherit my three score and ten do I expect to die until the apple crop of the United States shall surpass the potato crop in value, both for man and beast. It has the double quality of palatableness, raw or cooked, it is a permanent crop, not requiring annual planting, and it produces more bushels to the acre than corn, wheat, or, on an average, potatoes. The calculations may be made, allowing an average of fifteen bushels to a tree. The same reasoning is true of the pear; it and the apple are to hold a place yet, as universal eatables, a fruit grain not known in their past history.* If not, another tree should be set in this county (Marion county), in ten years the annual crop of apples will be 200,000 bushels. But Wayne county has double our number of trees; suppose however, the ninety counties of Indiana to have only twenty-five trees to a quarter section of land, i. e., to each 160 acres, the crop, of fifteen bushels to a tree, would be nearly 2,000,000.

SMALL FRUITS AND PIEPLANT.

The past year has greatly increased the cultivation of small fruits in the State. Strawberries are found in almost every garden, and of the select sorts. None among them all is more popular or deservedly so, than Hovey's seedling. We have a native white strawberry, removed from our meadows to our gardens, which produces fruit of superior fragrance and flavor. The crop is not large, but continues ripening for many weeks. The blackberry is introduced into the garden among us. The fruit sells on our market for from three to five cents. Profit is not, therefore, the motive for cultivating it, but improvement. I have a white variety. What color is a blackberry when it is green? We used to say red, but now we have blackberries that are white, and green blackberries which are red. Assorted gooseberries and the new raspberries, Franconia

* Fruit grain is evidently a typographical error for prominence.

and Fastolff are finding their way into our gardens. The Antwerps we have long had in abundance. If next spring I can produce rhubarb, weighing two pounds to the stalk, shall I have surpassed you? I have a seedling which, last year, without good cultivation, produced petioles weighing from eighteen to twenty ounces. My wrist is not very delicate, and yet it is much smaller in girth than they were.

FLORICULTURE.

In no department is there more advance among our citizens than in floriculture. In all our rising towns, yards and gardens are to be found choicely stocked. All hardy bulbs are now sought after. Ornamental shrubs are taken from our forests, or imported from abroad in great variety. Altheas, rose acacias, jasmine, calycanthus, snowberry, snowball, sumach, syringas, spicewood, sheperdia, dogwood, redbud and other hardy shrubs abound. The rose is an especial favorite. The Bengal, Tea, and Noiset bear our winters in the open garden with but slight protection. The Bourbon and Remontantes will, however, drive out all old and ordinary varieties. The gardens of this town would afford about sixty varieties of roses, which would be reckoned first rate in Boston or Philadelphia.

THE SEASONS IN INDIANA.

While New England suffered under a season of drought, on this side of the mountains the season was uncommonly fine, scarcely a week elapsed without copious showers, and gardens remained moist the whole season. Fruits ripened from two to three weeks earlier than usual. In consequence of this, winter fruits are rapidly decaying. Today is Christmas, the weather is springlike, no snow, the thermometer this morning forty degrees. My noisets retain their terminal leaves green, and in the southward dells of the woods, grasses and herbs are yet of a vivid green. Birds are still here, three were singing this morning on the trees in my yard. There are some curious facts in the early history of horticulture in this region, which I meant to have included in this communication, but insensibly, I have already prolonged it, I fear, beyond a convenient space for your magazine. I yield it to you for cutting, carving, suppressing, or whatever other operation will fit it for your purpose.

HENRY WARD BEECHER.

Indianapolis, December 25, 1844.

The editor appends this note to the article: "We find no necessity in making any alteration in the excellent communication of our correspondent, which is full of interest. We trust we may receive the 'Curious facts' connected with the early history of gardening in the West as soon as (his) leisure will permit."

INTERESTING LETTER FROM HENRY WARD BEECHER.

The following communication was read before the Indiana Horticultural Society and sent by Mr. Beecher to the Magazine of Horticulture of Boston, where it was published, in the December issue, 1844:

The year 1844 will long be remembered for the extensive ravages of that disease hitherto denominated the fire-blight. Beginning at the Atlantic coast, we have heard of it in Pennsylvania, Virginia, Ohio, Kentucky, Indiana, and as far as Tennessee; and it is probable that it has been felt in every fruit growing state in the Union where the season of 1843 was the same as that west of the Allegheny range, namely, cold in spring, dry throughout the summer, and a wet and warm fall, with early and sudden winter.

In Indiana and Ohio the blight has prevailed to such an extent as to spread dismay among cultivators; destroying entire collections, taking half the trees in large orchards, affecting both young and old trees, whether grafted or seedlings, in soils of every kind. Many have seen the labors and fond hopes of years cut off in one season by an invisible destroyer against which none could guard, because in the conflicting opinions, none were certain whether the disease was atmospheric, insect or chemical.

I shall now proceed to describe that blight known in the Western States (without pretending to identify it with the blight known in New York and New England), to examine the theories proposed for its causation, and to present now what seems to me the true cause.

I. Description.—Although the signs of it, as will appear in the sequel, may be detected long before the leaves put out in the spring, yet its full effects do not begin to appear until May, or if the spring be backward, until June. On the wood of last year will be found a point where the bark is either dead or dry, or else at the same point the bark will be puffed, softened, is sappy with thickened sap, these two appearances denoting only different degrees of the same blight. Wherever the bark is dead and dry, the limb will flourish above it, make new wood, ripen its fruit, but perish the ensuing winter. In the other case, as soon as the circulation becomes active, the point described shows signs of disease, the leaf turns to a darker brown than is natural to its ordinary decay, being nearly black, and the wood perishes.

The disease, at first blights the terminal portion of the branch; but the affection spreads gradually downward, and sometimes affects the whole trunk. The time from the first appearance of the blight to that in which the affected part dies is various; sometimes two or three weeks, sometimes a day only, and sometimes, but rarely, even a few hours consummate the disease.

On dissecting the branch the wood is of a dirty, brownish yellow color; the sap thick and unctuous, of a sour, disagreeable odor, like that of a fermented watermelon, or the tops of potato vines after they have been frosted. In still, moist days, where the blight is extensive in an orchard, this odor fills the air, and is disagreeably perceptible some distance from the trees.

Sometimes the bark bursts, the sap exudes, and runs down, turning black, and its acidity will destroy vegetation upon which it may drop, and shoots at a distance from the trunk upon which the rain washes this ichor, will soon perish. When we come to treat the cause of this disease, it will be important to remember this malignancy of the fluids.

We are careful to distinguish these appearances, peculiar to what I suppose ought to be called winter blight, from another and a summer blight. In this last, the leaf is affected first in spots, gradually the whole leaf turns russet-color and drops. Along the wood may be seen the hardened trail as of a slimy insect, of an ash color. The wood suffers very little by this summer blight, and sometimes none. The winter blight is found on almost all kinds of trees. This summer it has affected the apple, the pear, the peach, the quince, the English Hawthorn, privet, black birch, Spanish chestnut, elder and calycanthus. I enumerate the most of these kinds on authority of J. H. James, of Urbana, Ohio, and C. W. Elliott, of Cincinnati, having observed it myself only on fruit trees.

II. Theories.—A variety of theories exist as to the causes of this disease. Some are mere imaginations; some are only ingenious, and some are so near to what I suppose to be the truth, that it is hardly possible to imagine how the discovery was not made.

The injury is done in the fall, but it is not seen until spring or summer, or even the next fall. Thus, six months or a year intervenes between the cause and the effect, and a sufficient reason for the difficulty of detecting the origin of the evil.

1. Some have alleged that the rays of the sun, passing through vapors which arise about the trees, concentrate upon the branches, and destroy them by the literal energy of fire. Were this true, the young and tender shoots would suffer most; all pear trees would suffer alike; all moist and hot summers would be affected with blight; herbaceous plants would suffer more than ligneous, all of which results are contrary to facts.

2. Some have supposed the soil to have contained deleterious substances, or to be wanting in properties necessary to health. But in either case such a cause for the blight appears untrue, when we consider that trees suffer in all soils, rich or poor; that, in the same soil one tree is blighted and the next tree escapes; that they will flourish for twenty years and then blight; that a tree partially diseased recovers, and thrives for ten or more years without recurrence of the blight.

3. It has been attributed to violent and sudden changes of temperature in the air, and moisture in the earth; from sudden change from

sward to high tillage. And the result is stated to be an "overplus" of sap, or a "surfeit." All these causes occur every year, but the blight does not every year follow them. Changes of temperature and violent condition of the soil may be allied with the true cause. But when only these things exist, no blight follows.

4. Others have attributed the disease to over stimulation by high manuring or constant tillage, and it has been said that covering the roots with stones and rubbish, or laying the orchard down to grass, would prevent the evil. Facts warrant no such conclusions. Pear trees in Gibson County, Indiana, on a clay soil, with blue slaty subsoil, were affected this year more severely than any of which we have heard. Pears in southern parts of this State, on red clay, where the ground had long been neglected, suffered as much as along the rich lands of the Wabash about Vincennes. If there was any difference it was in favor of the richest land. About Mooresville, Morgan County, Indiana, pears have been generally affected, and those in grass lands as much as those in open soils. Aside from these facts it is well known that pear trees do not blight in those seasons when they make the rangest growth more than in others. They will thrive rampantly for years, no evil arising from their luxuriance, and then suddenly die of blight.

5. It has been supposed by a few to be the effect of age, the disease beginning on old varieties and propagated on new varieties by contagion. Were this the true cause, we should expect it to be most frequently developed in those regions where old varieties abound. But this disease seems to be so little known in England that Loudon in his Encyclopedia of Gardening does not even mention it. Mr. Manning's statement will be given farther on to the same purport.

6. Insect Theory.—The confidence with which eastern cultivators pronounce the cause to be an insect, has in part served to cover up singular discrepancies in the separate statements in respect to the ravages, and even the species of this destroyer. The Genesee Farmer of July, 1843, says, "the cause of the disease was for many years a matter of dispute, and is so still by some persons; but the majority are now convinced it is the work of an insect (*Scolytus pyri*). T. W. Harris, in his work on insects, speaks of the minuteness and obscure habits of this insect, as "reasons why it has eluded the researches of those persons who disbelieve in its existence as the cause of the blasting of the limbs of the pear tree." Dr. Harris evidently supposed, until as late as 1843, that this insect infested only the pear tree, for he says, "the discovery of the blight-beetle in the limbs of the apple tree is now a fact in natural history, but it is easily accounted for, because this tree belongs not only to the same natural group, but also to the same genus as the pear tree. It is not, therefore, surprising that both pear and apple tree should be attacked by the same insect." (See an article in the Massachusetts Ploughman, summer of 1843, quoted in Genesee Farmer, in July, 1843.)

This insect is said to eat through the alburnum, the hard wood, and even a part of the pith, and to destroy the branch by the separation of part from part, as a saw would. On these facts, which there is no reason to question, we make two remarks.

First. That the blight thus produced is limited and probably sectional or local. No account has met my eye which leads me to suppose that any considerable injury has been done by it. Mr. Manning, of Salem, Mass., in the second edition of his *Book of Fruits*," states that he has never had any trees affected by it. Yet his garden and nursery has existed for twenty years and contained an immense number of trees.

Second. It is very plain that neither Mr. Lowell, originally, nor Dr. Harris, nor any who describe the blight as caused by the blight-beetle, had any notion of that disease which passes by the same name in the Middle and Western States. The blight of the *Scolytus pyri* is a mere girdling of the branches, a mechanical separation of parts, and no mention is made of the most striking facts incident to the great blight, the viscid unctuous sap; the bursting of the bark, through which it issues; and its poisonous effects upon the young shoots upon which it drops.

I do not doubt the insect blight, but I am sure it is not our blight. I feel very confident, also, that this blight which, from its devastations may be called the great blight, has been felt in New England in connection with the insect blight, and confounded with it, and the effects of two different causes happening to appear in conjunction, have been attributed to one, and the least influential cause. The writer in Fessenden's *American Gardener* (Mr. Lowell), says of the blight: "It is sometimes so rapid in its progress that in a few hours from its first appearance the whole tree will appear to be mortally diseased. This is not insect blight, for did the blight-beetle eat so suddenly around the whole trunk? Nowhere is a striking appearance of the great blight confounded with the minor blight, as I think will appear in the sequel.

This theory has stood in the way of the discovery of the true cause of the great blight, for every cultivator has gone in search of insects, they have been found in great plenty, and in great variety of species, and their harmless presence accused of all the mischief of the season. A writer in the *Farmer's Advocate*, Jamestown, N. C., discerned the fire blight and traced it to small, red, ellucid insects briskly moving from place to place on the branches. This is not the *Scolytus pyri* of Professor Peck and Dr. Harris.

Dr. Mosher, of Cincinnati, in a letter published in the *Farmer and Gardener* for June, 1844, describes a third insect, "very minute, brown colored aphides, snugly secreted in the axilla of every leaf on several small branches; most of them were busily engaged with their proboscis inserted through the tender cuticle of this part of the petiole of the leaf, feasting upon the vital juices of the tree. The leaves being thus deprived of the necessary sap for nourishment and elaboration soon perished, while

all that part of the branch and trunk below depended upon the elaborated sap of the leaves above, shrunk, turned black, and dried up."—p. 261.

Lindley, in his work on Horticulture, p. 42-46, has detailed experiments illustrating vegetable perspiration, from which we may form an idea of the amount of fluid which these "very minute, brown colored aphides" would have to drink. A sunflower three and a half feet high, perspiring in a very warm day thirty ounces, nearly two pounds; on another day twenty ounces. Taking the old rule, "a pint a pound," nearly a quart of the fluid was exhaled by the sunflower in twelve hours, and the vessels were still inflated with a fresh supply drawn from the roots. Admitting that the leaves of a fruit tree have a less current of sap than a sunflower, or a grapevine, yet in the months of May and June, the amount of sap to be exhausted by these brown aphides would be so great that if they drank it so suddenly as to cause a tree to die in a day, they would surely augment in bulk enough to be discovered without a lens. If some one had accounted for the low water in the Mississippi in 1843 by saying that buffaloes had drunk up all the upper waters of the Missouri and cut off the supply, we should be at a loss which most to pity, the faith of the narrator, or the fate of the buffaloes after the imbibition.

But the most curious results follow these feats of suction. The limbs and trunk below shrink and turn black for want of that elaborated sap extracted by the aphides. And yet, every year we perform this operation in ringing or decortication of branches for the purpose of accelerating maturation or improving the fruit. Every year the saw takes off a half, and sometimes more, of a living tree, and the effect is to produce new shoots, not death. Is an operation which can be safely performed by man, deadly when performed by an insect? Dr. Mosher did not detect the insects without extreme search, and then only in colonies on healthy branches. Do whole trees wither in a day by the suction of such insects? Had they been supposed to poison the fluids the theory would be less exceptionable, since poisons in minute quantities may be very malignant.

While we admit a limited mischief of insects, they can never be the cause of the prevalent blight of the Middle and Western States, such a blight as prevailed in and around Cincinnati in 1844, nor of that which prevailed in 1832. The blight-beetle, after most careful search and dissection, has not been found, nor any trace or passage of it. Dr. Mosher's insect may be set aside without further remark.

I think that further observations will confirm the following conclusions:

1. Insects are frequently found feeding various ways upon blighted trees, or on trees which afterward become so.

2. Trees are fatally blighted on which no insects are discerned feeding, neither aphides nor *Scolytus pyri*.

3. Multitudes of trees have such insects on them as are supposed to cause the blight in other cases, without a sign of blight following. This has been the case in my own garden.

III. Cause of the Blight.—The Indiana Horticultural Society, early in the summer of 1844, appointed a committee to collect and investigate facts on the fire-blight. While serving on this committee, and inquiring in all the pear growing regions, I learned that Reuben Ragan, of Putnam County, Indiana, was in possession of much information and supposed himself to have discovered the cause of this evil, and to him I am indebted for the first suggestion of the cause. Mr. Ragan has for more than twelve years past suspected that this disease originated in the fall previous to the summer in which it declares itself. During the last winter Mr. Ragan predicted the blight, as will be remembered by some of his acquaintances in Wayne County, and in his pear orchards he marked the trees that would suffer, and pointed to the spot which would be the seat of the disease, and his prognostications were strictly verified. After gathering from him all the information which a limited time would allow, I obtained from Aaron Aldridge, of this place (Indianapolis), a nurseryman of great skill, and possessed of careful, cautious habits of observation, much corroborative information, and particularly a tabular account of the blight for nine years past in his nursery and orchard.

The spring of 1843 opened early, but cold and wet until the last of May. The summer was both dry and cool, and the trees made very little growth of new wood. Toward autumn, however, the drouth ceased, copious rains saturated the ground, and warm weather started all trees into late but vigorous growth. At this time, while we hoped for a long fall and late winter, on the contrary, we were surprised by an early and sudden winter, and with unusual severity at the very beginning. In this region much corn was ruined and more damaged; and hundreds of bushels of apples were caught on the trees and spoiled, one cultivator alone losing 500 bushels. Caught in this early winter, what was the condition of fruit trees? They were making rapid growth, every part in a state of excitement, the wood unripe, the passages of ascent and descent impeded with sap. In this condition the fluids were suddenly frozen, the growth instantly checked and the whole tree, was, from a state of great excitability, by one shock, rudely forced into a state of rest. Warm suns for a time followed severe nights. What would be the effect of this freezing and sudden thawing upon the fluids and their vessels? I have been able to find so little written upon morbid vegetable anatomy (probably from the want of access to books) that I can give but an imperfect account of the derangement produced by the circulating fluids by congelation. We can not state the specific changes produced by cold upon the ascending sap, or on the cambium, nor upon the elaborating descending current. There is reason to suppose that the two latter only suffer, and probably only the last. That freezing and thawing decomposes the coloring matter of plants

is known, but what other decomposition is effected, if any, I know not. The effect of congelation upon the descending sap of pear and apple trees is to turn it to a viscid and unctuous state. It assumes a reddish, brown color, becomes black by exposure to the air, is poisonous to vegetables even when applied upon the leaf. Whether in some measure this follows all degrees of congelation, or only under certain conditions, I have no means of knowing.

The effect of freezing upon the condition of sap vessels is better known. Congelation is accompanied with expansion, the tender vessels are either burst or lacerated, the excitability of the parts impaired or destroyed, the air is expelled from the aeriferous cavities and forced into the passages for fluids, and lastly, the tubes for the conveyance of fluids are obstructed by a thickening of their sides. (Lindley's Horticulture, pp. 81, 82.) The fruit trees of 1843 were brought into a morbid state, the sap thickened and diseased, the passages lacerated, obstructed and, in many instances, burst. The sap elaborated, and now passing down in an injured state, would descend slowly, by reason of its inspissation, the torpidity of the parts, and the injured condition of the vessels. The grosser parts, naturally the most sluggish, would tend to lodge and gradually collect at the junction of fruit spurs, the forks of branches, or wherever the condition of the sap vessels favored a lodgment. In some cases the passages are wholly obstructed; in others, only in part.

At length the spring approaches. In early pruning the cultivator will find in those trees which will ere long develop blight, that the knife is followed by an unctuous sap, and that the liber is of a greenish yellow color. These will be the first signs, and a practiced eye will detect them long before a leaf is put forth.

When the season is advanced sufficiently to excite the tree to action, the sap will, as usual, ascend by the alburnum, which has probably been but little injured, the leaf puts out, and no outward sign of disease appears, nor will it appear until the leaf prepares the downward current. May, June and July are the months when the growth is most rapid, and when the tree requires the most elaborate sap, and in these months the blight is fully developed. When the descending fluid reaches a point where, in the previous fall, a total obstruction had taken place, it is as effectually stopped as if the branch were girdled. For the sap which had been lodged there would, by the winds and sun, be entirely dried. This would not be the case if the sap was good and the vitality of the wood unimpaired, but where the sap and vessels are both diseased, the sun affects the branch of the tree just as it would if it were severed and lying on the ground. There will, therefore, be found upon the tree, branches with spots where the bark is dead and shrunk away below the level of the surrounding bark, and at these points the current downward is wholly stopped. Only the outward part, however, is dead, while the alburnum or sap wood is but partially injured. Through the alburnum

then, the sap passes up from the roots, enters the leaf, and men are astonished to see a branch, seemingly dead in the middle, growing thriftly at its extremity. No insect theory can account for this case, yet, it is perfectly plain when we consider that there are two currents of sap, one of which may be destroyed and the other for a limited time go on. The blight under this aspect is nothing but ringing or decortication, affected by diseased sap destroying the parts in which it lodges, and then itself drying up; the branch will grow, fruit will set, and frequently become larger and finer flavored than usual.

But in a second class of cases the downward current comes to a point where the diseased sap had affected only a partial lodgment. The vitality of the neighboring parts was preserved, and the diseased fluids have been undried by wind or sun, and remain more or less inspissated.

The descending current meets and takes up more or less of this diseased matter, according to the particular condition of the sap. Wherever the elaborated sap passes, after touching the diseased region, it will carry its poison along with it down the trunk by the lateral vessels, in toward the pith. We may suppose that the violence which would destroy the outer parts would, to some degree, rupture the inner sap vessels. By this, or by some unknown way, the diseased sap is taken into the inner upward current and goes into the general circulation. If it be in a diluted state or in small quantities, languor and decline will be the result; if in large quantities, and concentrated, the branch will die suddenly and the odor of it will be that of frost bitten vegetation. All the different degrees of mortality result from the quality and quantity of the diseased sap which is taken into the circulation. In conclusion, then, where in one class of cases the feculent matter was, in the fall, so virulent as to destroy the parts where it lodged, and was then dried by exposure to wind and sun, the branch above will live, even through the summer, and perish the next winter, and the spring afterwards, standing bare among green branches, the cultivator may suppose the branch to have been blighted that spring, although the cause of death was seated eighteen months before. When, in the other class of cases, the diseased sap is less virulent in the fall, but probably growing worse through the spring, a worse blight ensues, and a more sudden mortality.

I will mention some proofs of the truth of this explanation:

1. The two great blight years throughout this region, 1832 and 1844, were preceded by a summer and fall such as I have described. In the autumns of 1831-43 the orchards were overtaken by a sudden freeze while in a fresh growing state, and in both cases the consequence was excessive destruction the ensuing spring and summer.

2. In consequence of this diagnosis, it has been found practical to predict the blight six months before its development. The statement of this fact on paper may seem a small measure of proof but it would weigh much with any candid man to be told by an experienced nurseryman

this is such a fall as will make blight; to be taken during the winter into the orchard and told this tree has been struck at the junction of its branches; that tree is not at all affected; this tree will die entirely the next season; this tree will go first on this side, etc., and to find, afterwards, the prediction verified.

3. This leads me to state separately, the fact, after such a fall blighted trees may be ascertained during the process of late winter or early spring pruning. In pruning before the sap begins to rise freely no sap should follow the knife in a healthy tree. But in trees which have been afflicted with blight, a sticky, viscid sap exudes from the wound.

4. Trees which ripen their wood early are seldom affected. This ought to elicit careful observation, for, if found true, it will be an important element in determining the value of varieties of the pear in the Middle and Western States, where the late and warm autumns are more liable to winter blight than New England orchards. An Orange Bergamot, grafted upon an apple stock had about run out, it made a small and feeble growth, and cast its leaves in the summer of 1843 long before frost. It escaped the blight entirely, while young trees, and of the same kind, I believe, standing about it, and growing vigorously until the freeze, perished the next season. I have a list before me of over fifty varieties growing in the orchard of Aaron Aldridge, of this place, and their history since 1836, and so far as can be ascertained late growing varieties are the ones in every case subject to blight, and of those which have always escaped, the most part are known to ripen leaf and wood early.

5. Whenever artificial causes have either produced or prevented a growth so late as to be overtaken by a freeze, blight has respectively been felt or avoided. Out of 200 pear trees only four escaped, in 1832, in the orchard of Mr. Ragan. These four had the previous spring been transplanted, and had made little or no growth during summer or fall. If, however, they had recovered themselves during the summer so as to grow in the autumn, transplanting would have had just the other effect, as was the case in a row of pear trees planted by Mr. Aldridge in 1843. They stood still through the summer and made growth in the fall, were frozen, and in 1844 manifested severe blight. Mr. Aldridge's orchard affords another instructive fact. Having a row of St. Michael (White Dayenne) pear (of which any cultivator might have been proud) standing close by his stable, he was accustomed in the summer of 1843, to throw out now and then, manure about them, to force their growth. Under this stimulus they were making excessive growth when winter struck. Of all his orchard they suffered the ensuing summer the most severely. Of twenty-two trees twelve were affected by the blight, and eight entirely killed. All in this region know the vigorous habit of this tree. Of eight Crassane Bergamot (a late grower), five were affected and two killed. In an orchard of 325 trees of seventy-nine varieties, one in seven were blighted, and twenty-five were totally destroyed. Although a minute

observation was not made on each tree, yet, as a general fact, those which suffered were trees of a full habit and a late growth.

6. Mr. White, a nurseryman near Mooresville, Ind., in an orchard of from 150 to 200 trees, had not a single case of blight in the year 1844, though all around him its ravages were felt. What were the facts in this case? His orchard is planted on a mound-like piece of ground, is high, of sandy, gravelly soil, earlier by a week than nursery soils in this county, and in the summer of 1843 his trees grew through the summer, wound up and shed their leaves early in the fall, and during the warm spell made no second growth. The orchard then that escaped was on such a soil as insured an early growth so that the winter fell upon ripened wood.

7. It may be objected that if the blight began in the new and growing wood it would appear there, whereas, the seat of the evil, i. e., the place where the bark is diseased, is lower down, and on old wood. Certainly, it should be, for the returning sap falls some way down before it affects a lodgment.

8. It might be said that spring frosts might produce this disease. But in the spring of 1834, in the last of May, after the forest trees were in full leaf, there came frosts so severe as to cut every leaf, and to this day the dead tops of the beeches attest the power of the frost. But no blight occurred that year in orchard, garden or nursery.

9. It may be asked why forest trees do not suffer. To some extent they do. But usually the dense shade preserves the moisture of the soil and favors an equal growth during the spring and summer, so that their excitability is spent before the autumn, and it is going to rest when frost strikes it.

10. It may be inquired why fall-growing shrubs are not always blighted, since many kinds are invariably caught by the frosts in a growing state. I reply first, that we are not to say that every tree or shrub suffers from cold in the same manner. We assert it of fruit trees because it has been observed; it must be asserted of other trees only when it has been ascertained. I reply more particularly that a mere frost is not supposed to do injury. The conditions under which blight is supposed to originate are, a growing state of the tree, a sudden freeze, and a sudden thawing.

We would here add that many things are to be ascertained before this theory can be considered settled, as the afterstate of the sap after congelation, ascertained by experiment, the condition of sap vessels as ascertained by dissection, whether the congelation, the thawing, or both, produce the mischief; whether the character of the season following the fall injury may not materially modify the malignancy of the disease; seasons that are hot, moist and cloudy, propagating the evil; and others dry and cool, restraining growth and the disease. It is to be hoped that these points will be carefully investigated, not by conjecture, but by scientific processes.

11. We have heard it objected that trees grafted in the spring blight in the graft during the summer. If the stock has been affected during the fall, blight will arise from it. If the scion had, in common with the tree from which it was cut, been injured, blight must arise from it. Blight is frequently caused in the nursery, and the cultivator who has brought trees from a distance, and with much expense, has scarcely planted them before they show blight and die.

12. It is objected that while only a single branch is at first affected the evil is imparted to the whole tree, not only to the wood of last year, but to the old branches. I reply, that if a single branch only should be affected by fall frost, and be so affected as to become the depository of much malignant fluid, it might gradually enter the system of the whole tree, through the circulation. This fact shows why cutting is a partial remedy; every diseased branch removes so much poison; it shows, also, why cutting from below the seat of the disease (as if to fall below the haunt of a supposed insect) is beneficial. The farther the cut is made from that point where the sap has clogged the passages the less of it will remain to enter the circulation.

13. Trees of great vigor of constitution, in whose system but little poison exists, may succeed after a while in rejecting the evil and recover. Where much enters the system the tree must die, and with a suddenness proportioned to the amount of poison circulated.

14. A rich and dry soil would be likely to promote early growth, and the tree would finish its work in time, but a rich and moist soil, by forcing the growth, would prepare the tree for blight, so that rich soils may prevent or prepare for the blight, and the difference will be the difference of the respective soils in producing an early growth.

IV. Remedy.—So long as the blight was supposed to be of insect origin it appeared totally irremediable. If the foregoing reasoning be found correct, it will be plain that the scourge can only be occasional; that it may be in a degree prevented and to some extent remedied where it exists.

1. We should begin by selecting for pear orchards a warm, light, rich, dry and early soil. This will secure an early growth and ripen wood before winter sets in.

2. So soon as ascertained what kinds are early growers and early ripeners of wood, such should be selected, as they will be least likely to come under those conditions in which the blight will occur.

3. Wherever orchards are already planted, or where a choice of soils can not be had, the cultivator may know by the last of August or September whether a fall growth is to be expected. To prevent it, I suggest immediate root pruning. This will benefit the tree at any rate, and will, probably, by restraining growth, prevent blight.

4. Whenever blight has occurred, I know of no remedy but free and early cutting. In some cases it will remove all diseased matter, in some

it will alleviate only, but in a bad blight there is neither in this nor anything else that I am aware of any remedy.

There are two additional subjects with which I shall close this paper.

1. This blight is not to be confounded with winter killing. In the winter of 1837 or 1838, in March, a deep snow fell (in this region), and was immediately followed by a brilliant sun. Thousands of nursery trees perished in consequence, but without putting out leaves or lingering. It is a familiar fact to orchardists that severe cold followed by warm suns produce a bursting of the bark along the trunk, but usually at the surface of the ground.

2. I call attention of the cultivators to the disease of the peach tree called "the yellows." I have not spoken of it as the same disease as the blight in the pear and the apple, only because I did not wish to embarrass this subject with too many issues. I will only say that it is the opinion of the most intelligent cultivators among us, that "the yellows" are nothing but the development of the blight according to the peculiar habits of the peach tree. I mention it that observation may be directed to the facts.

HENRY WARD BEECHER.

October, 1844.

The following paper was to have been placed along with Henry Ward Beecher's letter to the Magazine of Horticulture, Boston, Mass., Hovey, Ed., on pear blight, but want of time excluded it. It is embodied in this report for the reason set forth by Mr. Fletcher.

Mr. President and Fellow Members—One rainy Thursday of the last State Fair I met our beloved William Henry Ragan, who, for once in his life, seemed disturbed. He said that in the discharge of departmental work at Washington he had gone entirely through the thirty-five volumes of Hovey's Magazine of Horticulture and had found three valuable contributions from Henry Ward Beecher when a resident of Indianapolis, and that to preserve the same his wife had copied them for future use. He was grieved because for the first time in his life an editor looked light upon his efforts and refused to print in his paper a matter of general interest. He asked me to offer it to our Society at its annual meeting and secure its preservation in this year's report.

I am aware that to a progressive society it is in one sense a back number, but it does show us that for our present magnificent display in this house there was sixty years ago a substantial beginning. Excavations in our day disclose the foundations of structures whose immense proportions astound us—overshadowing as they do any efforts of modern times. Time and the checker game for national life obliterate all above the ground line. The palaces of Caesar are traced only by subterranean walls and halls over twenty-one acres of ground. Around such ruins great interest and sentiment attaches. One stone at Jerusalem attracts

more attention than any other object save the birthplace of the Savior—because it identifies the site of Solomon's temple. From contact with such things in my travels I have learned to revere them. I never look upon this grand structure in which we have our home to-day—with our name over the door, but I think of the hundreds of carloads of broken stone the size of an egg which with cement form one grand stone thirty feet beneath us on which this architectural beauty stands. Who of 100,000 visitors thinks of it! No one of thought and knowledge of the past is willing to say we shall endure as we are—Nation and State. A chronological chart from Adam to Christ shows how nations are blotted out; the next 4,000 years may wipe out the present flags of this earth. Every stone of this building may find a place in the walls and fortifications forced upon our descendants, but rest assured the humble foundation will never be removed. It will show the future archaeologist the possibilities of the superstructure.

Had there been an unbroken succession for ten years of winters as destructive to orchards as that of 1863 and 1864, no sane man would have embarrassed his soil with a fruit tree save as a curiosity, and the unearthing of Mr. Beecher's letter would alone afford us a glimpse of a paradise long since lost to us. Pardon a personal allusion to him. I knew him during my boyhood and on to his demise. The inspiration derived by growing up at his feet has afforded me greater pleasure than aught else during life. It led to association with Fuller and Hovey, Thomas, Meehan, Barry, Warder, Elliott, Kirtland, Hull and a host of others outside of our State and into the sanctums of the Ragans, Aldridges and Sigamsons.

Note what Mr. Beecher says about our roses! Of all that number I know full well that he introduced the majority. He entered every doorway in this town. He dug up and transplanted or threw away; he gave new varieties; he drew all of us after him to the short counter on which our first displays were made. He enlarged our store of knowledge and excited our powers of observation. He taught us of stamens and pistils and their functions, and that the tints of flowers and the blushes of fruits were the reflex of smiles of the great Creator. Mr. Beecher was, moreover, eminently practical. Witness his high estimate of our privileges as a fruit growing State and country. Behold with what prophetic wisdom he saw our possibilities over a stormy sea which then required thirty days fortunate sailing to cross. Fruit for ourselves! Fruit for the world! And he lived to see his words fulfilled. Our esteemed brother, Joe A. Burton, will be pleased to read what he says of seedlings—and paradoxical as it may seem, is creating pedigreed seedlings to replace—yea, to exceed valuable varieties named by Beecher that are now lost.

CALVIN FLETCHER.

Room 12, State House,

Indianapolis, Ind., Thursday, December 4, 1902.

The State Board of Horticulture met immediately after the adjournment of the Indiana Horticultural Society. On roll call thirteen answered to their names.

On motion of W. C. Reed, seconded by Professor Troop, the Secretary was ordered to have printed exhibitors' certificates to be signed by them certifying that fruit and flowers shown by them and competing for premium were of their own growing.

Sylvester Johnson, present trustee of Purdue University, was recommended for reappointment.

Several bills were filed and allowances were made, and an order drawn on the Treasurer for the same. (See order book.)

The local Horticultural Society of Pendleton, Ind., gave invitation to the Society to hold its summer meeting with them the coming August.

On motion the invitation was accepted unanimously.

On motion adjourned sine die.

W. B. FLICK,
Secretary.

W. W. STEVENS,
President.

REPORTS OF LOCAL SOCIETIES, VICE-PRESIDENTS, AND MISCELLANEOUS PAPERS, SELECTIONS, ETC.

ANNUAL REPORT OF THE VICE-PRESIDENT OF THE NORTHERN DISTRICT.

J. C. GROSSMAN.

The past season was remarkable for the continuous wet and cool weather. Many of the rain storms were accompanied by severe winds, which, in many localities, destroyed many fruit, shade and forest trees. The extremely moist atmosphere was very conducive to plum rot, which was very severe among most varieties, especially so upon Hale, Burbank and Nickson in our own orchard. Peaches also suffered a great deal with the rot.

The strawberry crop, chiefly on account of the severe drouth of 1901, did not average over two-fifths of an average crop.

Frost about the first and also on the fourteenth and fifteenth of May did considerable damage in many places, and the humid atmosphere prevented perfect pollenization. The prospects for next year are better than last year. There were a great many second crop strawberries this fall, more than we had ever heard of before. This may materially decrease the yield next season.

Other small fruits were a fair crop, with a brisk demand and higher prices for all varieties of fruits than for a number of years. Cherries were only a fair crop, with failures in some sections. The demand was greater and prices higher than we ever experienced before. The apple and pear crops were unusually heavy in most of the counties, and the quality fair for unsprayed fruit and very fine in sprayed orchards.

Peaches were a complete failure in most sections or counties of the district with the exception, possibly, of Lagrange, where there was a very light crop on budded trees and a good crop on native or seedling trees, the crop being so heavy in some places as to break the trees down. There never is a complete failure in the peach crop where are plenty of native trees growing.

Plums in some counties were only a partial crop. With us the Japan, Abundance, Burbank, and Nickson were so heavily laden we had to thin severely, taking off one-half to two-thirds of the fruit last of June. We probably lost one-half of those remaining on Burbank and Nickson by rot, yet there were enough matured then for the age and size of the trees.

The late fall and dryer weather ripened the trees up fairly well and we look for a good season of most fruits next year.

Interest in fruit growing, I believe, to be on the increase and plantings are heavier.

There are three live local Horticultural Societies in the district, viz.: St. Joseph County Horticultural, Lagrange County Agricultural and Horticultural, and Noble County Horticultural Society. Each of these made very creditable exhibits at the State Fair last September and won first, second and third sweepstakes, respectively.

REPORT OF THE WAYNE COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY, 1902.

To the Indiana Horticultural Society:

I herewith submit this, my annual report of the Wayne County Agricultural and Horticultural Society, and with it a roster of the officers of the Society for the year 1902.

As usual, our twelve sessions of the Society were held on the second Saturday of each month. With the exception of two all meetings were

held in the horticultural room at the court house. The June and July sessions were all-day affairs, the former being held at the residence of the Secretary, just northwest of Richmond, the latter at the city's beautiful park, Glen Miller. At these meetings the members and their friends took their well-filled baskets and enjoyed a picnic dinner under the spreading branches of forest and ornamental trees.

The annual February dinner was as successful as any former one, being largely attended. The premium lists embraced the chief culinary articles, such as turkeys, meats, breads, pies, cakes, butter, salads, jellies, etc. The housewives industriously vied with one another in the preparation of these articles, which, after being passed on by the awarding committee, were placed on the dinner table and hundreds partook of the repast.

At all meetings our exhibition tables contained, in their season, the results of man's labor on the farm, orchard and garden, and indicated often the best varieties to plant. The ladies furnished their quota of flowering bulbs and plants, the bouquets of cut flowers being usually sent to the home of some sick or disabled member.

Officers for 1902: President, Caleb W. King; Vice-President, Rev. R. D. Laughman; Recording Secretary, Walter S. Ratliff; Treasurer, J. P. Norris; Corresponding Secretary, Hon. J. C. Ratliff.

Apples.—Unfortunately this has not been an apple year. Many earlier varieties yielded abundantly, while the summer and many of the winter sorts were almost complete failures. Many orchards that usually bear continuously, had but few specimens of any variety. Where apples were found it was doubtless due to the location of the orchard, systematic spraying, care of the trees, thinning of the fruit, etc., preceding and during the growth of the apples. There seemed to be no material difference in the yield of the different varieties in such orchards, but such fruit was not only reasonably perfect, but of fair size and color.

Pears.—An abundant crop of choice fruit of all varieties. Usually the summer varieties are finest, but the autumn and winter sorts were exceptionally large. A more liberal planting of the Dutchess, Bartlett, Tyson and Keiffer pears will doubtless be made during the coming year. This year's crop was equal to the demand.

Plums.—But few plums were grown in this locality. Too many of our orchardists neglected to spray their trees at the proper time and the insects secured most of the fruit. The ravages of the black knot has had a discouraging influence on plum culture. A number of new seedlings are being grown in order to secure stocks that are not affected with fungoid diseases.

Cherries.—A large percentage of the fruit dropped before mature, but a fair crop was gathered from most trees. A warm showery spell of weather at ripening time caused much loss by bursting and rotting on the trees.

Quinces.—For several years the supply of quinces has been far inadequate, and it is expected that later planting of quince bushes may yield more abundantly. The ease of propagation of quince cuttings should be an incentive to lovers of this kind of fruit to grow them more universally.

Peaches.—The splendid peach crops of the past two years was hoped to have extended through this section, but not a single bloom was seen in most orchards through this locality. As a consequence our supply of this delicious fruit was obtained elsewhere, and at very fair prices. A number of small orchards have lately been set.

Grapes.—Relatively a failure, as last year the vines did not pass through the winter in a good state, and lessened the chances for a crop to a minimum. But few perfect bunches were secured of any variety, and where not sacked were virtually destroyed by the troublesome berry worm.

Dewberries.—The cultivation of this most excellent fruit has been, especially in this locality, almost entirely abandoned, perhaps to its uncertainty of bearing, yet it is possible that our soils are not especially adapted to its growth or our fruit growers may not be acquainted with its manner of cultivation.

Strawberries.—About fifty per cent. of a full crop was gathered of choice berries. Although the set was indicative of a large yield, yet at the time of gathering it was found that many fruit stems with unripened berries were shriveled and atrophied; the cause of which has led many fruit men to differ.

Blackberries.—The past season was especially unfavorable for this kind of fruit, and but few crates were offered on our markets. The failure of last year caused many berry growers to cut down and revive their patches, and another year or so will be necessary to secure sufficient growth to mature a crop.

Raspberries.—But few growers succeeded in producing raspberries. The season was not very favorable and the canes being not very vigorous the crop was necessarily small. But few berry patches are to be found at present in this locality.

Ornithology.—The interest manifested in later years by the general public in ornithology has been increasing, and from the number of Audobon societies recently organized throughout our State, doubtless will be productive of good results. Surely fewer birds will be killed, eggs broken and nests destroyed, and a better knowledge of the value and habits of our North American birds will be gained through such observations and study, and the horticulturist will be among those mostly benefited by their protection.

WALTER S. RATLIFF,

Secretary.

REPORT OF THE LAGRANGE COUNTY AGRICULTURAL AND HORTICULTURAL SOCIETY, 1902.

The past year has been one of prosperity to the Society. We feel we have much to be proud of.

The organization held six meetings, all at the farm homes of its members, with the exception of the poultry meeting, which was held at South Milford in the Knights of Pythias Hall. Each meeting this year has enjoyed a fine picnic dinner, splendid programs by its young and older members and fine exhibits. The children made the entire exhibit at one meeting and had a place in most of the other exhibits. The exhibits have all been something for the Society to be proud of. While we have not paid large premiums, the exhibit has been such that we have paid out this year \$20.45 in cash premiums and \$14 in subscriptions to periodicals. The Society published 2,500 year books of sixty pages, each costing \$1.35. Sent a delegate to mid-summer meeting and two to the State meeting. Made an exhibit at the State Fair, received second sweepstake premium on county exhibit and several plate premiums. Made an exhibit at Kendallville Fair in competition with Noble County organization for sweepstakes of \$35 first and \$10 second. The judge could not see that much difference and divided the money equally. These exhibits of the two counties were very fine and extensive. The officers for 1903 are: President, J. C. Grossman; Vice-President, J. M. Mills; Recording and Corresponding Secretary, Lizzie C. Royer; Treasurer, Marion Garmire.

Executive Committee: J. T. Stough, R. C. Case and O. A. Lampman.

The apple crop in Lagrange County was good. Small fruits were a fair crop.

The season was very wet.

RECEIPTS.

Cash balance on hand December, 1902.....	\$51 50
Membership dues, 1902	24 00
Premiums of State Fair.....	21 75
Sale of apples, etc.....	12 15
Advertising	180 00
Premiums of Kendallville Fair.....	18 65
Second sweepstake premium at State Fair.....	40 00
	<hr/>
	\$348 05

EXPENDITURES.

Delegates to State meeting.....	\$15 00
Printing year book	135 00
Premiums to Society.....	20 85
Miscellaneous bills	87 49
Delegates to midsummer meeting.....	10 00
	<hr/>
	\$268 34

MRS. LIZZIE C. ROYER.

Valentine, Indiana.

Secretary.

PIONEER HOUSEKEEPING AND OTHER MATTERS.

 BY EMIL BEELER FLETCHER.

[A paper read at the Marion County Agricultural and Horticultural Society's meeting, July 13, 1901, held at Brookside Park, near Brightwood.]

It has been mutually agreed between Neighbor Cotton and myself that if he trespasses upon my domain, or I upon his, in our reminiscences, we are not to adopt modern methods and apply for a divorce or other legal redress, but rather exchange ~~values~~ and labors as did Darby and his wife, and that will soon settle all questions.

You have assigned to me the not unpleasant task of telling what I know of matters—"all of which I saw, and part of which I was;" and while I shall not magnify, as some have done, the hardships of those days, to gain the sympathies of the youth of to-day, I hope to not detract from the rosy tints they discern surrounding the sunset hours of that hardy generation who toiled that we might enjoy.

The distant mountain range with its curves of beauty marked against the background of clear sky, clothed as with a velvet garb through the influences of light and shadow and atmospheric effect, is, to the innocent, ignorant admirer, a veritable Beulah-land; and the snow-capped summits seem to be the angel wings that make short the journey to the heaven desired of all. To him, however, who has with grub-stake prospected that apparant fairyland in search of precious metals—the enchantment of distance fails to efface memory or even soften the realities of the situation. He knows full well the obstacles of the rugged route from the plain to the snow line. He sees again the endless canyons with impassable walls—the dangerous cliffs that fringe the bit of mesa land—

the yawning gulches as deep and broad as the volcano's crater—the rushing mountain torrents, the dense jungle of standing forest—and the impassable regions where avalanches have crushed such forests to earth. He dreads to meet again the invulnerable grizzly, the mountain lion, the jealous red man or more jealous rival prospector. He knows that those caps of spotless white that give such sanctity to the peaks, that the calendar of the saints has been exhausted to provide names for, are scores of nature's greatest storm centers, and that a journey in search of the north pole is to be less feared than to venture there. The realities of housekeeping in pioneer days differ from the standard set up by the writers of romance based on tradition, and I am ready to testify that there is but little of such experiences that I would entail, if I could, upon future generations. Distance has lent no enchantment to the view.

It is difficult to separate the labors within from without the house at the starting point of life in the heavy forest of this country and for a quarter of a century thereafter. There was no man but at times became cook, nurse or washerwoman, nor was there a woman who did not in emergencies help to build the cabin, the stable, the crib, who did not pile and burn brush and logs to make possible a garden, an orchard or a field; hence, I can not confine myself strictly to the indoor work, although I shall attempt it for your benefit. -

My position was that of the first born girl in every household. I was a kindergarten scholar in the school of housekeeping—and my mother was the teacher. Seventy years ago I took my first lessons, and the list of the few implements and utensils possessed, and their location and use are as vivid to me to-day as then. The cabin with its stick and mud chimney—its puncheon floor, its rude door and tiny windows, its loft, its potato hole, all existed before my day. The iron crane stands first on the roll of possessions, for thereon hung more that made life possible than all else. It was a triangular work of wrought iron with one side elongated and its end upturned to prevent untimely slipping off of pots. This crane was set in two iron eyes driven into the left hand jamb of the fireplace, and could be swung in and out over or from the fire to suit the heat for best results in the esteem of the cook. On it was hung "big or little, pot or kettle," in which at times water was boiled for all purposes, meats and vegetables and boiled victuals were cooked, hominy and mush were made, head cheese fashioned, pumpkins stewed, apples peaches and other fruits reduced to jams, jellies, butters, etc. Cider was boiled to insure keeping qualities, lard was rendered from the fat of hogs, and tallow from that of cattle and sheep, and in emergencies of weather, the weekly washing held sway, or the soap or sugar water claimed the crane. Syrup from the camp was finished there into molasses or granulated sugar through the skill and at the will of one whose talents would have never lost the art of making the Damascus blade. Clabber cheese was created there, and skim milk warmed for motherless

calves, and water for an occasional bath. In case of great demand or sore need the coffee was born there, as also the savory pot pie—and on the same day and hour the pewter plates—heirlooms of homes beyond the Alleghenies—and the knives and forks were washed there. The parti-colored thread of many a Joseph's coat and Rebecca's skirt were dyed there with the precious indigo and saffron of commerce. No wonder the hanging of the crane was the inspiring theme of a loved poet.

A word as to fire fuel. The heathen nations have asserted that fire was the best gift of the Gods to man, coming first from heaven. In the esteem of many they have been justified for diverting their adorations from the Creator to the created, fire worship was pardonable. Before a roof protected the pioneer his flint and steel and tinder box provided fire, and when possessed was cared for by a host more numerous and pure than all the vestal virgins of classic Greece and Rome. Fuel abounded, still there was a choice, and there was skill in the arrangement for best results. The wide-mouthed jambs permitted sticks of from four to ten feet to be used. The back stick must be slow burning and non-popping Buckeye was the favorite, combining with the above properties that of reflecting the heat of the rest of the fire from its electric face. For the forestick, which rested a few inches from the hearth upon stones or dog irons; and just removed from the back stick green ash or hickory, or partly seasoned sugar tree or beech were preferred. The science displayed in securing draught was equal to that of modern mechanics, and there was less complaint of smoky flues than there is to-day. The first cost of a cabin was small, but the contents made destruction by fire a calamity greater to the sparce neighborhood than that our nation would feel if called on to feed the drouth-stricken regions of any other people. No one had such use for fire as our parents, none were so careful in handling and preserving it. A bed of coals in a bed of ashes, well covered on top, was the greatest security. Kindling and stove coal, natural gas and artificial, coal oil and a few handy matches have done away with all that labor of preparation, that skill of handling, and exchanged that hazard for greater.

The outfit of the fire-place further consisted of a poking stick—a small hand spike of wood or, better still, of wrought iron, strong enough to turn a log or lift the lids of ovens and pots, also pot hooks, being two pieces of light rod iron a foot to eighteen inches long, bent and united like shears at one end, while the other was sharpened and curved to hook into the ears of the pots and oven and into the loop at the top of all lids. In time a large strong pair of tongs became the crowning joy of the chimney corner. For cooking utensils in addition to the kettle hinted at above, we had a big cast iron oven in which bread, meat, potatoes, pies and cakes, and all other bakable and roastable foods were made ready for the table. That oven was of from four to eight gallons capacity, and quite heavy. It had three to four feet or legs which elevated the

bottom about three inches from the hearth. There was also a heavy, tight-fitting lid. The oven and lid, preparatory to being filled for cooking, were placed upon the burning wood and when sufficiently hot, lifted off onto a bed of coals which were fresh spread upon the hearth, and after judiciously being tested as to temperature the food placed within, the lid on top, and a covering of coal finished the job. We also had such pots and skillets and frying pans as prevail to-day, modified by necessity and fashion. These were used like the kettle upon the crane, or the oven on the hearth, for such purposes as we now use them. In addition, the coffee pot and sieve—the last named being sometimes the property of the neighbors to our inconvenience, had their places among our household goods—to which in time was added a heavy cast iron teakettle. Compare the above list with the paraphernalia the housekeeper of to-day places at the disposal of Bridget or Dinah to be used on a first class range, and it is but natural to inquire, “Well! how did you manage to get along?” I can, without prejudice, aver that the friendly sunbonnet and the up-lifted left hand have screened from the furnace-like heat brains such as you can not buy to-day, and that the skilled hands of such have yielded results that the fancy clubs of gourmand would be glad to secure.

Our supply of fuel was exhaustless. There was no growling at gas companies. Logs were hauled to the door from the clearings and piled high for future use. Daily a sufficiency was cut the proper length by the men folks, if time and season permitted, and if not, the women were equal to the task. What did we have to cook? The products of wheat and corn and buckwheat; light bread from yeast and salt rising; biscuits, dumpling and pie crusts, hoe cake, dodger, egg corn bread, hominy, and mush; buckwheat cakes, flap jacks and pan cakes in variety; sponge cakes, golden in their richness; and ginger cakes, the joy of election day and the Fourth of July; with crulls in fantastic shapes for the holidays; fresh game from the woods and streams alternating with the meats of domestic animals, and annual unfailing fruits, such as blessed the happy valley in which Rassela, the prince of Abysinnia was placed, and vegetables without end. I fear if I stop to explain, I shall be led to exploit until I would wish to be a girl again with a bit of dough molded by chubby hands ready to test the oven's heat for mother's baking. So I pass to the labors that have prepared a generation for the duties of life and rendered so serious their mental bent, and, I am sad to add, have doomed many prematurely to their rest from toil.

The ash hopper, safe and removed from buildings, was an unending care. It was constructed of split boards supported in a frame made of four forked sticks driven in the ground, with cross sticks resting in the forks. The lower ends of the boards converging and ending in a trough hewn out of buckeye and placed slanting so that the lye could flow into a crock or other vessel. Now we secured the lye by pouring water on the well rotted ashes and permitting it to run or pass slowly through the

ashes to the trough. And with this lye all kinds of refuse fat and rind of meat—through boiling in the big kettle which hung upon a pole out of doors (preferably in March), we made our soap—not the fragrant sweet-scented sorts that Jerusalem and Castile furnish—not the “Ivory,” the “Tar,” or the varieties that give the foundation for those beautiful illustrations of to-day in fashionable periodicals—but strong, soft soap or hard soap with which to cleanse our scanty wardrobes from the dirt of the earth, from dust of the threshing floor, the sweat of the harvest field and all outdoor labors, from the filth of the barnyard with which there was daily contact, and to overcome the countless varieties of the modern microbes, of which we knew all that is practically known to-day, except their names—and the salaries they secure for a few. And this soap making was woman’s work. It could not be otherwise then, and the March wind that fanned the fire and blew aside the smoke puffed out the gentle flame of life of many a young wife and mother.

After the spring plowing of the garden spot, the planting and cultivation of the same, and the gathering the products fell to the women—and when the orchards gave their harvests—excepting the final roundup of October gathering, the work of picking, peeling and drying, fell to the same tired yet tireless hands. The blessed device of canning fruits and vegetables, thus prolonging their seasons, had not come to our homes. The limited space within doors made hospitality to visiting friends and the wayfarers more laborious but not the less enjoyable than it would be to-day. Beds and bed clothes could be piled ceiling high in the day time and spread upon the floor at night for the extra company. And when you recall that perhaps every article thus used was the product of the mother’s labor, either before or after marriage, and that it must be kept clean and in repair without a convenient laundry to aid or a sewing machine to facilitate such work, you can easily give credit for great ability, industry and endurance in that line.

After the early breakfast another special duty, that knew no vacation, no relief, on Sundays, rainy days, holidays, in sickness or health, must receive attention—through cold and heat that work must be performed, the calves must be suckled or fed and the cows milked. No well built barns, no convenient stalls or stanchions, not even open sheds protected cow and milker from the driving storms—the excessive heat or cold. And the women braved and performed this arduous task. What followed, of straining the milk through simple methods, caring for the same until fit to skim the cream, caring for the cream until ripe for churning, pounding the same in the old fashioned dash churn, which for many produced yellow grease in hot weather and white foam often in cold, was also a portion of woman’s housekeeping in the long, long ago. I am glad to note, however, that the blessings of a cool spring of water aided many, myself among the number, in this last industry. The few sheep the wolves and dogs permitted us to keep furnished wool and the

exuberant growth of weeds and burs found a home therein, and when the fleece was clipped—in which work many a woman assisted—the labor was only begun. The burs had to be picked out and, before the days of carding machines, the wool had to be hand carded, rolled and spun, reeled and knit or woven, and all by the housewife and the assistance of the sore but nimble fingers of her children. The flax upon which dependence was placed for shirts, table linen, towels, summer wear and countless things, was raised in the fields and prepared principally by the men for spinning and weaving. The women did the rest, involving a catering to the fashion of bleaching by laborious and repeated washings and sun drying for days. Oh, dear, will I never complete the list of calls and duties? There was the poultry to protect from the minks and weasles, the coons, the 'possums, the wet and the dry, the cold and the heat, the hawks and the crows, and gapes and vermin!! and if any survived they must be chased hither and yonder, guided by the cheering voice of the roosters and the cackling hens to the secret nests beneath the convenient brush and logs, in hollow stump or hay stack, or fodder shock. And when the feathers are ripe on squeaking geese or quacking ducks, the blood blisters appear on the fingers of the women and girls—for men had other things to do. The eggs helped out the food list immeasurably, and many a necessity was bought with them at the store and the grocery. And poultry products at times paid taxes, too.

The cabin was fairly lighted by day in ordinary weather, for the wide open door supplemented the eight by ten glass of the windows. At night the blazing logs did good service, but at times we needed more light to sew and read by. A cast or wrong iron lamp, which could be hung on the wall or suspended from the ceiling was our first device. Any clean grease or oil could be burned in it through the use of a strip of cloth or wick. It was dirty, but a good makeshift. We also made tallow candles, first by the dipping process, to wit: In melted tallow, not too hot, wicks placed on slender sticks were dipped in the liquid, held above it a few seconds to drip, then rested on trestles to further cool, and the process repeated until the proper size was attained. After a while the tin candle molds came into use, such as are known to-day, in which stearine or sperm candles are made. In 1859-60, the coal oil lamp appeared, and with improvement both in the quality of oil and lamps continue to this day—the approved light of the majority of the people of this earth. Artificial gas and electric light are found only in cities and large towns. Fish oil has special uses, but had no place on farms.

I have hinted at the labor of washing already. In detail the burden was great, this county had only hard or lime water in its springs, wells, creeks and veins. Troughs hewn from large tree trunks, or now and then a hogshead were placed on the ground beneath the eaves of houses to catch rain water, a rather poor reliance in dry weather, and as washing was a weekly job we broke water by putting ashes in a large kettle

of water which made it soft. Why did we not use cistern water? Bless you, I was out of my teens before the first barrel of cement came into the county. Well, we washed out doors the most of the year, and hung clothes on grape vines, and caught cold, and ironed and mended, fifty-two times a year, and if I have had one nightmare haunt me above all others through life it is the dreaded wash day!

The Scriptural account of creation I took seriously, yet put my own interpretation upon some things. I could not figure out much leisure for Adam, who, without hired help, had to dress that garden which God planted in Eden. The little help derived from the elephants' and camel-opards' trimming, and the browsing of cattle, deer, sheep and goats, was offset by the tramping, and the fruit picking of birds and the monkey tribe was a bad job, while the potato digging by wild hogs was not conducive to good nature. I still recognize that the four great rivers which watered that part of the world had origin in a great spring in Eden wherein Adam could bathe at will, but the matter of greatest import to me was, that the fashions did not require clothing, and consequently there was no wash tub, wash kettle, water breaking, soap making, rinsing, drying, ironing, mending and folding. No wonder "Satan found some mischief still for idle hands to do." I used to wish I had been Eve, I thought I could have resisted his majesty's offer of an apple and a first class job in the laundry.

In this picture of woman's duties in early farm life here I should not withhold the sincere pleasure we had in congregating not for a picnic, but to facilitate labor, as at wool pickings, quiltings, lard renderings, barn raisings, apple and peach cuttings, etc., and the simple dances that followed after. Children had their hollow stump playhouses, their corncob dolls, with corn silks for hair, their bright pebbles and broken crockery for dishes. We all labored through years at corn dropping, wheat shocking, feather pulling and apple picking to earn wherewith to buy side saddles and new bridles—and then our earthly bliss was complete, when some manly beau astride of his high stepping horse would ask the pleasure of our company to church, singing or spelling school, or to an apple cutting or quilting. We went fearlessly dashing along forest paths, across the unfenced country and down the lanes. Now, girls, don't blush, old ladies don't deny it, when we were kissed, as we deserved to be, we did not smell the odor of a stinking pipe or sickly cigarette, or catch the fumes of poisonous liquors. Did we like to be kissed? Certainly, and we got husbands for wedding presents—and they got wives who knew how to work. There were no buggies or carriages, bicycles or automobiles in the days of which I write. There was no leisure to use them and no roads to use them on. There were no reapers and mowers, corn planters, potato diggers or hay loaders. There were no sulky plows, disk rollers or wheat drills, for the fields were one-fourth covered with stumps and the soil full of roots, and modern implements could not have

been used if possessed. There was no drain tile or dredging machine in the State—but there were great bodies of rich, moist land giving forth disease on every breath of air to assail the pioneer and his isolated family, and when I consider those days—the labors and the conditions—I do not wonder that the majority passed away before time had crowned them with hoary heads. They left honored names to posterity. They built no workhouses, friendly inns or homes for the friendless, or orphan asylums. There was work for all and good morals prevailed. Orphans and surplus children of the very poor found homes and social equality among those able to keep and rear them. Politics and religion abounded then as now—but with less scandal and lower salaries. There was honest difference of opinion then, but no trumped up cases of insanity to secure paltry fees. I am not sure that the world grows better.

EMIL BEELER FLETCHER.

PREVENTION OF BITTER ROT.

(SELECTED.)

This disease, which has sometimes proven so disastrous to the apple grower, has already been found this year widely distributed throughout the chief apple growing regions of Illinois, and it has probably made the same start elsewhere. It is never greatly developed at this season of the year, but sharp observers are able to find it when there are but few infected spots on the young apples.

A discovery just made, July 11th, founded upon the observation of an Illinois apple grower, seems to give an opportunity not before possible to combat the scourge, and this circular is issued hastily in the hope that a portion of the apple crop now liable to attack may be saved. It is a matter of common knowledge that the fruit first infected in a tree occupies a definite position in the branches. In general terms it may be said that the disease shows in a conical shaped area with the apex upward, and this has been explained by the fact that the spores of the fungus are adhesive so that they can not be distributed by wind but can readily be washed down by rain. The primary infection at the apex of this cone, commonly supposed to be an earlier diseased apple, furnished, it was thought, the spores which started the disease in the fruits underneath. It has now, however, been ascertained (and this is the new fact in the case) that this primary infection starts in a canker upon the limb of the tree. In this situation the fungus lives over winter and as early sometimes as June begins to produce spores by which the young apples are infected. It has been ascertained that this same thing takes place in a "mummied" fruit, and attention has heretofore been strongly directed

to this. As, however, the mummied fruit commonly falls to the ground the matter remained a puzzle as to how the spores could rise to the tree. The new observations recently made by us in many orchards showed that the limb canker was in every case the source of primary infection, and therefore these cankers are much more dangerous than the old mummies. It is not usually easy to discover the cankered spot from the ground, but it is easy to locate it by the diseased spots on the apples. With a little practice, any one with eyes sharp enough to detect these latter can quickly find the former. It seems, therefore, entirely feasible to prevent further infection by a critical examination of the trees at this time of the year and the removal of the cankered limbs and the fruits already diseased from it.

WHAT THE CANKER LOOKS LIKE.

Canker occurs on limbs of any size—from those of an inch or two in diameter to last year's fruit spurs. More commonly the spot is two to four inches long. The affected portion is killed by the fungus and the new growth rises as a rim of healing tissue about its border. The spot is therefore sunken to the extent of the later increase in diameter of the limb. It is rough and black and has somewhat the appearance of an old, ragged wound as often results from many causes. By close observation it will be seen that the old bark of the killed portion is still present, though usually variously ruptured and sunken. The fungus which causes the bitter rot of apples is present in this old bark and bears the spores in clustered masses over its surface, from which they are washed by the rain to the fruit as described. So far as observed, these cankered spots are few in number, except in the case of one variety, that of the Huntsman, where they are found to be very numerous. More often only a tree here and there in the orchard has a cankered limb.

PREVENTIVE MEASURES.

From what is now known, the following preventive procedure is advised: Examine the orchard tree by tree, following systematically the rows—perhaps on horseback or in some way to look down as much as possible upon the fruit, the infected spots being usually on the upper surface of the apple. At this time of the year these spots are brown, circular and very slightly depressed and show clearly against the light or reddish color of the apple. As soon as one spot is found, search for others and just above the uppermost ones look for the cankered limb. This limb is sure to be in such a position that spores may be washed from it onto the spotted fruit. It will now be an easy matter to cut away the diseased limb and to remove the infected fruit below it. It will be safer, however, to take all the apples from that portion of the tree subjected to

infection from the canker, for it may not be easy to find the very small spots where the fungus recently started. Cut well below the cankered spot, avoiding the rubbing of the infected area by tools or hands. The operator who goes into the tree top for the purpose of making examinations and removing cankered limbs should be provided with rubber boots or thin-soled shoes, so as to not in any way cause the rupture of the bark when climbing about. All diseased limbs and fruit removed from the trees should at once be put into a wagon or other receptacle and removed from the orchard, when they will be either burned or buried deeply in the ground.

Experiments carried on this year by the University of Illinois prove conclusively that bitter rot can be very largely held in check by Bordeaux mixture, even when trees have one or more cankered limbs. It is believed, however, that a critical examination of the trees and the removal of the source of infection as described is the most important work the orchardist can do. The university is now at work preparing additional information carefully illustrated which will be distributed in circular form within a week or ten days. Go to work now, however, with the information at hand, for the delay of a single day may mean the loss of your entire crop.

J. C. BLAIR,

J. T. BURRILL,

Chief of Horticulture.

Chief in Botany.

Urbana, Ill., July 14, 1902.

IMPORTANCE OF HEALTH IN THE BARK OF A TREE.

FROM WESTERN FRUIT GROWER.

In a paper read before the Mississippi Valley Apple Growers' Association, Prof. E. C. Green discussed the functions of the bark of a tree and its relation to fruit bearing as follows:

In the bark and the layer of tissue immediately beneath it exists the life of the tree. The arterial system of the tree lies wholly within a quarter inch of the surface. The realization of these almost self-evident truths should impress on the fruit grower the necessity of keeping the bark in the most vigorous condition possible. It is said, with truth, that when a young tree becomes stunted during the first few years of its life it is more profitable to dig up the tree and start with a young, thrifty one than to attempt to bring the little bark-bound tree back to a vigorous condition. In a healthy apple tree the bark is usually bright and smooth, the outer corky layer is thin and evenly placed and the cambium layer beneath is thick. When the growth beneath becomes sufficient the cork splits and checks, loosens readily and is thrown off by the rapidly growing trunk or limb beneath. In ordinary wheat-growing clay sod a well-

started young tree will maintain this appearance and condition for a matter of six or ten years with little attention further than the usual cultivation given a corn field. During this period of normal growth, however, it is usual that several forms of vegetable and animal life attach themselves to the tree as a host and live on the sap and bark. These little plants and animals are few and inconspicuous at first, but as the years go by they become sufficiently numerous to have a marked effect upon the health and appearance of the bark. If the soil about the tree has been fertilized from time to time the growth may be so vigorous as to withstand for a considerable period the attacks of insect and fungous enemies. But, provided the bark receives no special attention, sooner or later their presence is felt, and the effect is noticed in the changed appearance of the bark, the lessened vigor of the tree and the smaller production of fruit. If this comes to pass when the tree is ten years old, the owner lays it to bad weather, and if at twenty years the verdict is that the tree is old and nothing else could be expected.

The average productive life of winter apple trees, when properly cared for, is about thirty-five years, varying somewhat with the varieties. The reason, or at least one of the reasons, why this is not true for Illinois, lies in the fact that no care is given the bark of the tree; in a neglected orchard the bark appears roughened on the trunk and limbs, while the smaller branches and twigs usually present a dull, lifeless appearance. The old bark does not fall away rapidly, but clings for months, forming excellent winter quarters for various forms of insects. Fungous growths cover the limbs and branches and each tree is a menagerie of native scales, bark lice. The cambium layer is thin and incapable of carrying an amount of sap sufficient to grow a crop of fruit, even if strength enough had been carried up to make a good "set."

In remedying such an orchard the first work should be to clean up the bark; not that this alone will bring it back to vigor and productiveness, but from the fact that such treatment will remove much of the most active causes of its poor condition. In the case of a hitherto well cared for orchard suddenly given over to total neglect, the last part of the trees to show the change would be the bark, and so in bringing back an orchard from neglect it is the last part to show improvement in the bark.

Cultivation and fertilization have much to do with the vigor of the bark, and are the methods best adapted to thickening a weak, dry cambium layer. If, however, the bark is in a vigorous condition in this respect and cultivation and fertilization have been the annual rule of the orchard, it is quite possible that productiveness is being sacrificed to sappy growth, and in such an instance the plan should be to stop fertilizing and by doing no cultivating later than June check growth and cause the cambium layer to become more firm in texture. Provided nutrition and cultivation are right and the insects and diseases are the

causes of the poor condition of the bark it is a comparatively simple and inexpensive procedure to practically exterminate them. For scurfy scales, oyster shell bark lice and wooly aphids a ten per cent. kerosene emulsion in June will kill ninety per cent. of the young insects.

If such diseases as those of the apple rot type have attacked the twigs, causing the dead and roughened bark or the unknown diseases common on Benoni, causing bunches on the limbs, a winter or early spring wash should be used. Take fifteen pounds of live lime and slack with water, in which two pounds of copper sulphate have been melted, and add about fifty pounds or more of fine hardwood ashes. The materials diluted to fifty gallons of water should be sprayed on trunks and branches, using a coarse spray. This treatment clears off old bark, destroys insect eggs and fungus spores and has a tendency to remove many of the hardy scale insects. The effect on the bark is very pronounced.

Such a wash costs little and is believed to be as effective in its work as the most costly of tree paints and patent washes. It will prove profitable to care for the bark, for dried-up, bark-bound orchards can not produce valuable crops.

PEAR BLIGHT.

The disease known as pear blight, and little understood until within a few years past, has been more than usually prevalent the present season. The leaves on some branch—usually a shoot of the present season's growth—die and the shoot soon turns black. Frequently this extends farther down to the older wood, and if no effort is made to stop the malady the tree dies outright. Sometimes it will stop one season, to begin again and run its entire course to the death of the tree, next year.

The remedy is cutting and burning the affected branch, and this should be done as soon as possible. The cutting should be some distance below the point at which the disease seems to stop—six to twelve inches—so as to be certain of removing all the diseased wood. This sometimes disfigures the tree, but it is an effectual remedy if done properly and without delay.

The malady is now known to be bacterial—a microscopic fungus; and it may be transmitted from one tree to another, which explains the burning part of the treatment recommended above. Even a knife used on a diseased branch will infect a healthy tree by cutting into it, unless the implement is disinfected. The simplest method of disinfection is by passing the knife blade slowly through the flame of a lamp, and this should be done at once.

The same malady affects some of the apple trees, and the quince trees occasionally, but it is not nearly so virulent, rarely or never killing the tree but stopping with shoots of the current season's growth. In this case it is called twig blight; and the remedy is the same.

Nearly or quite all varieties of the pear are subject to the blight, but some more than others, and some are so very liable to the disease that they are passing out of cultivation. Of this class are Limon, Adams, Pitmaston, Idaho, Brandywine, Collins, Paradise d' Automne, Hoosic, Moyamensing, Selleck, Kingsessing, Edmonds, Giffard, Glout-morceau, Rostiezer, and a number of others. Even the fine old Flemish Beauty is so uncertain— or rather so certain to blight—that it is being passed by.

Of those which are but little affected with blight, Seckel and Tyson may be said to stand at the head. Howell would generally be placed with them, and may as well be now, but this blighty season it is somewhat affected. Keiffer, when introduced twenty years or so ago, was said never to blight. But it will blight some times, though not a great deal. One of the most deservedly popular varieties, Bartlett, blights occasionally, but usually yields to prompt treatment. Its daughter, Clapp's Favorite, a very fine pear, understood to be a cross with Flemish Beauty, is nearly as subject to the disease as the latter variety. To the list of those little affected may be added also Bloodgood, which ripens the latter part of July, just before Tyson; and Anjou (formerly called Beurre d' Anjou), a late fall variety.

It is thought that manuring and high cultivation are conducive to blight, and there are those who adopt the view of the late Thomas Meehan, that pear trees are best grown in grass, with a moderate top-dressing annually of not very stimulating manure.—R. J. B., in Stockman and Farmer.

SPRAYING AS A TRADE.

With the commercial fruit grower spraying is a part of his business, or profession, if it may so be termed. He considers it as important as any of the many branches pertaining to his work. There is machinery made for him, an extensive literature for his instruction, practical teachers within reach, while an unlimited amount of advice may be had for the asking. He certainly has little reason to be at a loss what to do.

The amateur is not so favorably situated. The man who raises fruit for the family supply, who looks for his reward in the pleasure and profit to come from furnishing his own table, is the one meant by the word "amateur." He is the man to be considered, for though he is numerous, he ought to be still more so. But he is the one who is passed by while the large grower is being cared for.

Many a man who has a small lot would gladly employ his spare moments at growing some kinds of fruit, but is kept from doing so on account of insects and diseases which he knows are lying in wait.

Here, it would seem, is an opportunity for a man who would follow spraying as a trade during the season. Having everything in readiness and understanding what to do, he could accomplish in a few moments

what it would take the amateur half a day to do in a bungling manner. The result should be to the satisfaction of all concerned. The owner could expect to have a harvest without paying a double price for his fruit in time, labor and vexation, not to mention the cost of wasted material, and the spray-man should have remunerative employment.

Much could be done among the farmers who have small orchards. The neglected orchard has been the text for many a sermon, but if some of these preachers would take pains to find out the true cause they might be more just. Many of these trees are on farms which are otherwise models of neatness. They are neglected because the work of caring for them would interfere too much with the general routine, which is more important. There is corn to be cultivated, haying and harvesting to be done. These things are present and certain. It is not in accordance with human nature to neglect them for the future uncertainties of the apple or plum orchard. Add to this the annoyances which have been mentioned in connection with the amateur and it is little wonder that there are neglected orchards.

If the work could be turned over to a man skilled in spraying many farmers would gladly avail themselves of the opportunity. The results should be fewer breeding places for insects and fungi, better returns from orchards and a clearing up of many an unsightly orchard.

It seems strange that more has not been done in this direction. Every community might well give profitable employment to the man with the spray pump through several weeks of the year.

But it should not be forgotten that the spray pump has worked a revolution in horticulture. Time is necessary for an adjustment to the new conditions. If it proves that there is a real need for the man with the sprayer it may be expected that he will soon put in an appearance. At present it looks as though there might be room enough for him.—F. D. W., in *Western Fruit Grower*.

REPORT OF THE STATE ENTOMOLOGIST OF INDIANA

AND LIST OF INDIANA NURSERYMEN INSPECTED IN 1903.

*To His Excellency, WINFIELD T. DURBIN,
Governor of the State of Indiana:*

Sir—In accordance with the provisions of section eleven (11), chapter one hundred and thirty-eight (cxxxviii) of the General Laws of 1899, I hereby submit my fifth annual report of the work done and expenses incurred by this office during the fiscal year ending October 31, 1903.

The work of this office during the past year has been confined principally to the inspection of nurseries, although the calls for assistance in other directions have been many; and the correspondence concerning insect-infested orchards and field crops has been far in excess of other years. As far as possible I have responded, either in person, or by my assistant, to the many requests for personal inspections of orchards which were thought to be infested with the San Jose scale. Many more of these inspections could have been made, very profitably so, too, had the appropriation at my command been sufficient to warrant it. As it is, the funds at my disposal is little more than enough to enable me to complete the nursery inspection.

There are two things which we are trying to accomplish with the limited means at our disposal. (1) To inspect all nurseries in the State, and, if possible, keep them free from dangerously injurious insects and plant diseases; and (2) to prevent the further introduction and spread of these pests of the nurseryman and orchardist, as well as those affecting the general farmer. The first is perhaps the most important, as without a clean bill, the nurseryman can not do business in this or any other State. For that reason the nursery inspection has been given the preference, not forgetting, however, to keep an eye on shipments from other States. Our law requires that whenever any nursery stock is shipped into this State from another State, each package or car, if in car lots, shall be accompanied by a certificate signed by a State or Government Inspector, showing that the contents have been examined by him, and that to the best of his knowledge and belief such stock is free from San Jose scale and other destructive insects or fungus enemies. In several instances

during the past year my attention has been called to the fact that packages have been received by freight or express agents which were not duly labeled, and such packages were ordered held until the owners could be notified and certificates supplied or the packages returned. However, in most cases, these apparent violations of the law have been due to neglect or ignorance of the law on the part of the agents, rather than to willful violation.

LAWS IN OTHER STATES.

Some of our nurserymen have been greatly annoyed and hindered in their shipments to other States by the (seemingly) unnecessary amount of red tape which has been woven into the laws of some of the States. For example, duplicate certificates are required for filing in the States of Alabama, Georgia, Maryland, Michigan, North Carolina, Virginia and Wisconsin, and these duplicate certificates, in some of the States at least, must contain the original signature of the inspector, not a certified copy of it. Not only this, but the official tag of the State Board of Entomology must accompany each shipment. In Montana all stock shipped into the State will be unpacked, inspected and fumigated at designated quarantine stations before it can be delivered.

In Virginia it is unlawful for any person to sell or deliver any nursery stock unless he shall first procure a certificate of registration, which will cost him \$20, and no nursery stock is allowed to come into the State unless it contains an official tag which the nurseryman must have previously purchased from the official in charge. With such a multiplicity of laws and "provisions" to be observed, certainly the path of the nurseryman who attempts to follow them all is anything but pleasant. Our law is simple, plain, easily observed, and I believe as effectual as that of any other State. I believe, too, that it will stand the tests of the courts much better than some of those already mentioned. We prefer to believe that most nurserymen, at any rate, are honest, and that it is quite unnecessary to give out the impression that they are not by hedging them about by so many laws.

Right here let me say that I believe that one of our greatest needs today, so far as our American fruit interests are concerned, is national legislation looking to the enactment of uniform inspection laws; and these laws should apply, not only to imports, but to exports as well. At the annual meeting of the American Apple Growers' Congress, recently held in St. Louis, the statement was made by a New York exporter of American fruits that during the past year a number of shipments of apples were rejected in the European markets because they were covered with San Jose scale. If that be true, is it any wonder that Germany is trying to exclude American apples as well as American meat? A uniform system of inspection before shipments are made would very largely obviate this difficulty.

SCALE INFESTED LOCALITIES.

Last year I reported the San Jose scale as having been found in twenty-five counties. To this list is now to be added Allen, Bartholomew, Grant, Johnson, Kosciusko, Marshall and Pulaski, making thirty-two in all to date. Besides these just mentioned we have found eighteen new localities where the scale has not been known before. In some instances quite large orchards are infested, but in most cases the damage done is only slight as yet. My assistant (Mr. J. C. Marquis) reported that he found the conditions in Switzerland County not so favorable as he could wish; and in Jefferson County, near Madison, there seems to have been a letting up on the spray pumps, as one or two orchards which, a year ago, seemed to be practically free from the scale, were found to be well covered again. Orchardists should remember that they are in this fight to stay, and nothing short of eternal vigilance will win. About the same condition exists in and around Evansville as was reported a year ago, except that the scale seems to be spreading to new localities. During the summer my assistant visited the Southern Insane Hospital at Evansville and found most of the trees and shrubbery on the grounds well infested with the scale. Vigorous measures were at once applied by the superintendent with good results.

Mr. A. H. Goehler, of Wabash County, quite recently sent me specimens of the San Jose scale which he found on trees and shrubbery in several lots in the city of Marion while delivering some nursery stock. I have not yet had time to investigate this point, so am unable to say just how much territory is covered by it. During last August I was called to Johnson County to investigate an orchard some five miles east of Greenwood, and found a well developed case of San Jose scale on plum and pear trees, which had been planted some five or six years and were undoubtedly infested when the trees came from an eastern nursery. Most of these infested trees were destroyed, and by so doing a fine, young orchard near by will undoubtedly escape the same fate.

While on his way home from the Summer meeting of the Indiana Horticultural Society, last August, Mr. H. H. Swaim, Assistant Inspector for the northern end of the State, stopped at Fort Wayne and made some investigations which resulted in finding several badly infested cases of the scale inside the city limits. This was an important find, as there are a number of quite large orchards and small fruit plantations in the immediate vicinity, and this discovery will enable the owners to take the proper precautions to prevent its further spread.

A number of other more or less isolated cases have been found, and I am glad to report, that in every case the owners have been found to be not only willing, but anxious to apply the remedies prescribed, which is a very healthy indication. However, the more I investigate this matter

the more I am convinced that we are in for a long siege with this pest. Newly infested localities are constantly coming to light, and the old ones are very slow in surrendering the advantage already gained. Yet if every man owning any considerable number of acres of orchard would provide himself with a good spray pump and the other necessary appliances, and then use them intelligently both winter and summer, the problem would be comparatively easy. Our Experiment Stations and others have worked out successful remedies and have given the proper methods of application, information concerning which may be had for the asking. The office of the State Entomologist is intended to be a bureau of information on matters of this kind, and under present conditions in our own State, we can do little more than to advise as to the proper methods to pursue. It then becomes an individual matter. The fruit growers themselves must furnish the materials and power to do the work.

CONCERNING OTHER SPECIES OF INSECTS.

No serious outbreaks of other injurious species have been reported to me during the year. The Hessian fly, which threatened to destroy the wheat crop of 1903, did not materialize last spring so as to do serious damage except in certain localities. A large part of this exemption was doubtless due to the work of the Hessian fly parasite. The chinch bug, was reported from a few localities only. The excessive rains during the early part of summer doubtless did much towards destroying the winter broods, as it is a well known fact that the chinch bug can not stand much wet weather.

The canker worm was also reported as doing some injury in a few localities, but a few timely applications of Paris green was all that was necessary.

The corn-root worm, strange as it may seem, was also reported from a few localities. It seems that there are still a few farmers who can learn a lesson only by experience. The fact that this insect feeds only upon the corn plant has been made known by the experiment stations, Farmers' Institutes, newspapers and others for the past twenty years, and yet there are some who will persist in raising corn after corn until this insect compels them to change their methods of cropping.

NURSERY INSPECTION.

During the inspection period which extends from June 1st to October 1st, we have inspected 152 nurseries. These are scattered over sixty-three counties, extending from the Ohio river to the Michigan line, and they cover all the way from a half acre up to over 300 acres in extent. All have been granted certificates. One has gone out of business on account of too close proximity to the San Jose scale, and ten have quit for other reasons, and three have started in this year.

FINANCIAL STATEMENT FOR THE YEAR ENDING OCTOBER
31, 1903.

RECEIPTS.

Amount received from State Treasurer on vouchers submitted
to State Auditor \$1,000 00

EXPENDITURES.

Traveling expenses, including hotel bills and livery hire..\$238 77
Postage, express and telegrams..... 20 83
Stationery and printing 64 15
Per diem of self and assistants..... 676 25

Total expenditures \$1,000 00

I also append a list of Indiana nurserymen whose premises were in-
spected in 1903, together with postoffice address and the location of nurs-
ery and amount of stock under cultivation.

Respectfully submitted,
J. TROOP,
State Entomologist.

LIST OF INDIANA NURSERYMEN, INSPECTED IN 1903.

With name and postoffice address, together with amount
of stock under cultivation.

- Adams, Ira E., Linton, Greene County. Location, one and one-half miles north of city. Peach only.
- Albertson & Hobbs, Bridgeport, Marion County. Location, one-half mile west of Bridgeport. Three hundred acres in nursery stock.
- Alexander, J. B., Hartford City, Blackford County. Location, southwest part of city. Dealer.
- Alstott & Son, J. M., Sunshine, Harrison County. Location, one and one-half miles southeast. Four acres.
- Back & Son, Henry, Witt, Dearborn County. Twenty-eight acres nursery stock, five acres small fruits.
- Bell, E. H., Richmond, Wayne County. Location, one mile east, five acres.
- Baldwin, T. A., Oxford, Benton County. Mostly small fruits.
- Bennett, W. C., Scotland, Greene County. Location, four miles south of Koleon. One hundred acres in trees, two acres in small fruits.
- Bennett, A. S., Lafayette, Tippecanoe County. Location, near city limits, southeast. Twenty acres.
- Bennett, W. S., Paxton, Sullivan County. Seven acres nursery stock.
- Bennett, S. D., Koleon, Greene County. Location, two and one-half miles southwest. Two acres nursery and one acre small fruits.
- Best, John M., Kingman, Fountain County. Small stock.
- Bird & Son, John, Raysville, Henry County. Location, north side of town. Railroad station, Knightstown. Ten acres nursery.
- Bowman, M. M., Wall, Jay County. Small fruits.
- Bradley, C. P., South Bend, St. Joseph County. Location, three and one-half miles southeast. Twelve acres small fruits. Dealer.
- Bremen Nursery Co., Bremen, Marshall County. Location, just outside of town. Eight acres fruit, shade and ornamentals.
- Bridges, John M., Dugger, Sullivan County. Location, one mile east and two miles south of Bloomfield. Fifty acres in nursery.
- Broshears, Porter, Boonville, Warrick County. Location, one-half mile south. Five acres.
- Brown, Walter, Connersville, Fayette County. Location, near town. Five acres in catalpas.
- Browne, Mercer, Spiceland, Henry County. Location, one mile south of Spiceland and one mile north of Dunreith. Ten acres in nursery and five in small fruits.
- Brownstown Nursery Co., Brownstown, Jackson County. Four acres.
- Bundy, W. P., Dunreith, Henry County. Location, one-fourth mile north of town. Twenty acres nursery, two acres small fruits.

- Burch, James M., Stanford, Monroe County. Two and one-half acres.
- Burge, Warren, Retreat, Jackson County. Two miles north of Cruthersville. Small stock.
- Burkhart & Son, H. A., Southport, Marion County. Location, three miles south of Indianapolis. Three acres nursery and fifteen acres small fruits.
- Burns City and Pleasant Valley Nursery, Burns City, Martin County.
- Card & Webber, Greenfield, Hancock County. Small stock.
- Cathcart, Alva Y., Bristol, Elkhart County. Location, near town. Ten acres in small fruits. Dealer.
- Caylor, John, Ridgeville, Randolph County. Location, eastern limits of city. Five acres tree fruits and shade trees.
- Cochran, L. B., Greensburg, Decatur County. Location, north side of town. Five acres trees, one and one-half acres small fruits.
- Cockrum & Son, W. M., Oakland City, Gibson County. Location, near city. Two acres nursery stock.
- Cook, J. L., Warsaw, Kosciusko County. Seven acres small fruits.
- Cosby, L. C., Washington, Daviess County. Location, two miles southeast. Five acres stock.
- Cunningham & Son, J. H., Sugar Branch, Switzerland County. Ten acres of stock.
- Dean, Hiram P., Greenwood, Johnson County. Location, adjoining town. Ten acres in nursery.
- Dickey, J. W. & Co., Doans, Greene County. Location near town. Ten acres in nursery stock.
- Dixon, C. S., Bloomfield, Greene County. Location, one mile south of town. Two and one-half acres small fruits.
- Dreyer, J. F., Frankfort, Clinton County. Location, in suburbs. Four acres, mostly small fruits.
- Eickhoff, Ed. A., Gallaudet, Marion County. Location, six miles southeast of Indianapolis. Four acres nursery, three acres small fruits.
- Eickhoff, H. C., Julietta, Marion County. Location, four miles southeast of Indianapolis. Ten acres.
- Engler, O., Walton, Cass County. Location, near town. Small fruits. Dealer.
- Fullhart & Co., Willard, R. F. D. No. 3, Muncie, Delaware County. Location, four and one-half miles southeast. Eight acres in trees and four acres in small fruits.
- Furnas & Co., T. Chalmers, Sheridan, Hamilton County. Five acres, seeds and ornamentals.
- Gaar, W. H., Germantown, Wayne County. Location, residence in town. nursery one and one-half miles southeast. Five acres in nursery and three in small fruits.
- Garber, D. M., Pierceton, R. R. No. 1, Kosciusko County. Small fruits.

- Goehler, Albert, Urbana, Wabash County. Location, three miles north. Three acres nursery stock.
- Garrett, E. B., Burns City, Martin County, on S. I. R. R. Location, near town. Ten acres in nursery stock.
- Goss, John, Rockville, Parke County. Small stock.
- Graham, Charles F., New Albany, Floyd County. Location, two and one-half miles northeast of city. Three acres in nursery.
- Graham, J. K., New Albany, Floyd County. Location, resides in city; nursery, three miles north. Two acres in nursery.
- Gregg, Warren C., Pennville, Jay County. Location, one-half miles northeast. Eight acres trees and four acres small fruits.
- Grossman, J. C., Wolcottville, Lagrange County. Location, three miles northwest. Two acres small fruits. Dealer.
- Gustin, E. R., Peru, Miami County. Dealer.
- Haines, Joseph, Lake, Spencer County.
- Haines, Thos., Lake, Spencer County.
- Hand, H. M., Argos, Marshall County. Location, three miles northwest. One acre small fruits.
- Harnish, George, Bluffton, Wells County. Location of nursery, five miles northwest. Resides in town. One and one-half acres nursery, fifty-five acres orchard.
- Havelin, Alva, Attica, Fountain County. Dealer and small fruits.
- Hazen, Smith, Hatfield, Spencer County. Location, one mile south. Four acres in nursery stock.
- Heacock, E. E., Salem, Washington County. Location, four miles northwest of town. One acre in trees.
- Heacock, J. W., Canton, Washington County. Location, one-fourth mile north of Canton. One-half acre in nursery.
- Heim, Alwin L., Brownville, Warrick County. Location, five miles west. Six acres in nursery stock.
- Henby & Son, J. K., Greenfield, Hancock County. Location, one mile west. Fifty acres in nursery, fifteen acres in small fruits.
- Henry, H. W., Laporte, Laporte County. Location, one mile northwest of Laporte. Twenty-seven acres of small fruits and five acres of fruit and ornamental trees.
- Hill & Co., E. G., Richmond, Wayne County. Location, one-half mile east. Florists. Two acres in plants and twenty greenhouses.
- Hoagland, George T., Portland, Jay County. Location, five miles north of Redkey. Seven acres small fruits. Dealer.
- Holland, William, Plymouth, Marshall County. Location, two and one-half miles southwest. Twenty acres trees, one acre small fruits.
- Hook, L. C., Albany, Delaware County. Small stock.
- Hoppes, John H., Redkey, Jay County. Small fruits.
- Hughel & Co., Anderson, Madison County. Location, one mile east. Ten acres in trees and five acres small fruits.

- Irvin, William A., Vincennes, Knox County. Ten acres small fruits and trees.
- Jarrett, J. A., Montpelier, Blackford County. Location, three miles northwest. Five acres fruit and shade.
- Jeffries, E. T., Boonville, Warrick County. Location, five miles southwest. Three acres.
- Kelly, Samuel, Alert, Decatur County. Location, north end of town. Four acres.
- Kepler, S. W., Pulaski, Pulaski County. Location, five miles southwest of Pulaski. Three acres.
- King, W. D., Scotland, Greene County. Location, five miles south of KOLEEN. Five acres nursery stock.
- Knaub, Ben, North Vernon, Jennings County. Location, five and one-half miles northeast. One acre.
- Korner, Joseph, Star City, Pulaski County. Location, two and one-half miles west of town. Four acres small fruits. Dealer.
- Kuebler, Theodore D., Armstrong, Vanderburgh County. Five acres nursery stock.
- La Hane, William, Chesterton, Porter County. Location, suburbs of the town. Five acres small fruits. Dealer.
- Lucas, John W., Bloomfield, Greene County. Location, four miles east of town. Six acres trees, one acre raspberries.
- Lutes, O., Portland, Jay County. Small stock.
- McClaren, Charles, Sunshine, Harrison County. Location, one-fourth mile southwest. Four acres.
- McCoy, J. E., Bourbon, Marshall County. Location, one-half mile south. One acre apples and pears, ten acres small fruits. Dealer.
- McEldery, W. E., Boonville, Warrick County. Location, in town and one-half mile south. Six acres in nursery.
- McGinnis, D. A., R. F. D. No. 1, Andrews, Huntington County. Location, ten miles south and two west of Andrews. Small fruits.
- McHolland, W. S., KOLEEN, Greene County.
- McIntosh, George W., Rego, Orange County. Location, one-half mile southwest. One-half acre.
- Martindale & Hostetter, Doans, Greene County. Location, near town. Twelve acres in nursery stock.
- Mason, B. F., Martinsville, Morgan County. Location, seven miles south. Two acres.
- Mason, V. E., ten acres of stock near Martinsville, Ind.
- Melton, J. F., Amboy, Miami County. Location, in town. Two acres small fruits. Dealer.
- Meeker, H. H., Crown Point, Lake County.
- Meredith & Son, KOLEEN, Greene County. Location, two and one-half miles southeast. Forty acres in nursery stock, one acre small fruits.
- Miller, Thad, Tulip, Greene County. Small stock.

- Milhouse, Jesse G., Ezra, Jennings County. Location, four and one-half miles southeast of Butlerville. Two acres.
- Milhouse, Frank, Hyde, Jennings County. Location, five miles southeast of Butlerville and one and one-half miles east of Hyde. Three acres nursery.
- Mills, Grant, Portland. Small fruits.
- Minnick, Henry, Converse, Miami County. Location, three and one-half miles northeast. Three acres apples, cherries and pears.
- Moffit, Frank, Carmel, Hamilton County. Two and one-half miles southeast. Small fruits.
- Moon, H. E., Portland, Jay County. Small stock.
- Moore, C. B., Monticello, White County. Location, two miles west of Monticello. Two acres.
- Morris, Thomas M., Clinton, Vermillion County. Small stock. Dealer.
- Moyer, G. N., Laketon, Wabash County. Location, one and one-half miles south. Forty-five acres nursery stock, thirty acres of fruit.
- Morrison, O. A. J., Middle Fork, Clinton County. Location, six miles south of Michigantown. Carolina poplars. Dealer.
- Overman, J. C., Raysville. One-half mile east. Small stock.
- Patterson, P. T., Bloomfield, Greene County. Location, one mile south of town. Two acres in trees and three in small fruits.
- Paxson & Son, George, Pennville, Jay County. Location, three miles northwest. Two acres tree fruits, one-half acre small fruits.
- Peffly, T. J., Dora, Wabash County. Twenty acres small fruits and sixty acres in orchard.
- Pennington, C. C., North Vernon, Jennings County. Two acres, mostly small fruits.
- Perry, Alex, McCutcheonville, Vanderburgh County. Small stock.
- Phelps, William, Noblesville, Hamilton County. Location, two miles southeast. Five acres trees, ten acres small fruits.
- Phillips Bros., Hobbieville, Greene County. Location, one-half mile north. Twenty-eight acres in tree fruits.
- Potter, E., Redkey, Jay County. Location, five and one-half miles north. Two acres small fruits.
- Preble, A. C., Marion, Grant County. Location, 303 N. Boots street. One acre in nursery stock. Dealer.
- Ragle, Amos & Son, Elнора, Daviess County. Location, south side of Elнора. Twenty-five acres trees, four acres small fruits.
- Randolph Bros., Lafayette, Tippecanoe County. Location, three miles southeast. Fifty acres.
- Reed Nursery Co., Harrell, Jefferson County. Location, two and one-half miles southeast of Harrell. Five acres in nursery.
- Reed, W. C., Vincennes, Knox County. Location, two miles southeast. One hundred and fifty acres nursery stock. Twenty-five acres small fruits.

- Rogers, Hugh, Knox, Starke County. Location, one mile south. Three acres small fruits. Dealer.
- Rogers, R. S., Bloomfield, Greene County. Location, two miles northwest of town. Three acres small fruits.
- Roth, Daniel, Boonville, Warrick County. Small stock.
- Scott, Charles H., Winamac, Pulaski County. Location, one and one-half miles southeast of town. One acre trees, fruits and ornamentals.
- Sanders, Mrs. Jane, Westville, Hamilton County. Small stock.
- Semon, H. C., Bennville, Jennings County. Location, one and one-half miles east in Ripley County. One and one-half acres stock.
- Sharp, G. H., Linton, Greene County. Small stock.
- Simpson & Sons, H. M., Vincennes, Knox County. Location, two miles east. Fifty acres in nursery stock. Twenty-five acres small fruits.
- Sleeper Bros., Fowler, Benton County. Four acres.
- Small, Wm. H., Attica, Fountain County. Location, near town.
- Smith, W. F., Battleground, Tippecanoe County. Five acres near town.
- Smith, Al. B., Garfield, Montgomery County. Location, five miles northeast of Crawfordsville. Two acres small fruit.
- Smith, W. H. H., Medaryville, Pulaski County. Dealer.
- Snodgrass, J. M., Kirklín, Clinton County. Two and one-half miles southwest of Scircleville. Small fruit. Dealer.
- Snoddy Nursery Co., Lafayette, Tippecanoe County. Dealers.
- Snoke, J. W., South Bend, St. Joseph County. Location, in town. Dealer.
- Stacey, W. E., Lyons, Greene County. Location, nursery two miles north. Six acres nursery, one of small fruits.
- Stineman, Jonas, Wawpecong, Miami County. Location, six miles east of Bennetts. Dealer.
- Stout, W. C., Monrovia, Morgan County. Location, two and one-half miles southwest.
- Swaim, H. H., South Bend, St. Joseph County. Location, three miles southwest. Six acres small fruits. Dealer.
- Teas, E. Y., Centerville, Wayne County. Location, one square from inter-urban line. Three and one-half acres mostly ornamentals.
- Terrell, W. T., Bloomfield, Greene County. Location, one-half mile north of town. Thirty acres in trees and two acres small fruits.
- The Hancock County nurseries, E. A. Henby & Co., proprietors, Greenfield.
- Truex, G. W., Lockman, Brown County. Location, seven miles north of Freetown. One acre.
- Tull, E. A., Scottsburg, Scott County. Peaches only.
- Vernia, Mrs. Elizabeth, New Albany, Floyd County. Location, three miles southwest of city. Two acres in nursery.
- Wabash Valley Nursery Co. (J. B. Evans), Bluffton, Wells County. Location, adjoining the town on west. Thirty acres mixed stock.

- Walker & Son, F., New Albany, Floyd County. Location, two miles north-east. Five acres in nursery.
- Ward, T. J., St. Marys, Vigo County. Location, two and one-half miles northeast of St. Marys and six miles northwest of Terre Haute. Ten acres of nursery and twenty-five in orchard.
- Webb, T. J., Attica, Fountain County, northwest of town.
- White, Harry, New Holland, Wabash County. Location, ten miles southeast of Wabash. Eight acres small fruits. Florist and dealer.
- Wickizer, James M., Plymouth, Marshall County. Location, two miles south. Eight acres small fruits. Dealer.
- Williams, John J., Warren, Huntington County. Location, near town. Dealer.
- Wilson, J. M., North Judson, Starke County. Location, near town. Small fruits.
- Winchell, G. W., Tobinsport, Perry County. Location, northeast of W. R. Polk. Small stock. Six acres small fruits. One acre tree fruits and ornamentals.
- Witwer, J. B., South Bend, St. Joseph County. Location, one mile east.
- Wright Nursery Co., J. M. T., Portland, Jay County. Resides one mile west. Forty acres fruits and shade trees.
- Young, George C., Greensburg, Decatur County. Location, one mile southeast. One acre nursery and one acre small fruits.

ANNUAL MEETING

OF THE

Indiana Shorthorn Breeders' Association,

MEETING OF SHORTHORN BREEDERS ASSOCIATION,
FEBRUARY 19, 1903.

The meeting was called to order by the President at 10 o'clock a. m.

The Secretary's and Treasurer's reports were read and adopted.

PRESIDENT'S ADDRESS.

For the thirty-first time has this organization met in annual meeting, and of all the Presidents you have had none have felt more proud of that honor than the present one. Proud, not for the emoluments of the office, but to think that an association organized for such a purpose should deem me worthy of the highest office in their power to bestow. I hope that I have done nothing to bring disgrace upon the association, but if I have, I assure you, gentlemen, that it was done without thought.

We are glad to have as many with us today as we have and hope the time may come when every Shorthorn breeder in this, the grandest of all these United States, will consider that it is not only a duty he owes to himself, but a special privilege for which he should be devoutly thankful, not only to become a member but to actually participate in every meeting of such an organization as ours. I say it is a duty he owes to himself, for it is only by the constant rubbing up against the other fellow in this world, procuring his ideas, and then assimilating them with our own that we become experts in any line of business. The merchant who keeps a line of goods demanded by the trade and not the one who travels along in the well beaten path of forty years ago, is the one who is going to succeed. I do not mean by this that we are to cast aside all the old as entirely unfit for use, but we should profit by the

mistakes of others, pick out the good and take advantage of the knowledge gained by them. Just so in the breeding business, the breeder who breeds his females to a bull just because he owns him, not only does himself an injury but the cause as well, and if followed up he will reap his reward. We are living in a progressive age and the breeder who will keep abreast of the times, is ever on the alert, and anticipating rather than trying to emulate the wants of the trade is the one who is bound to reap a rich reward. I will leave it to your own judgment which of the two rewards you prefer to reap.

It is not hard for one to continue in a given business during times of prosperity, but it takes a man with a great deal of patience and perseverance to do so during times of depression, and one with an indomitable will and dogged tenacity and stick-to-it-ive-ness to continue in the cattle business during such times as we had during the closing years of the last century, and yet he who had the determination and did stick to it, and bred right on as though nothing had happened has been able to take unto himself a great deal of satisfaction in the last few years. As a sculptor, with a chisel and mallet, may make himself famous, so may the breeder of improved live stock become famous, for as the one demonstrates his ability to carve out of the marble any figure he may desire, so should the other demonstrate his knowledge of the art of breeding, so as to carve out, through the mating of animals, his ideal. The fame of the one as well as the other depends entirely upon the results attained. Many people travel far across the seas, to far away Italy and other foreign lands, to view and study the works of many sculptors, and yet many of these same people would not travel far to study the works of a so-called sculptor in live-stock breeding, though the latter is far superior to the former; for has not the other the perfected model before him, while the latter never has. Of these two sculptors the latter is more, yes, many times more, the benefactor of mankind than the former, for is he not engaged in producing something that is not only ornamental but is one of the necessities of life.

How many of us have not heard many people look at some picture of live stock and then say, "Well, if they were like that, wouldn't they be beauties?" I must confess I used to think that myself, but that is just as one sees it, and while most pictures, of course, have their finishing touches, yet they are in the main not exaggerated. But in order to see the animal as the picture presents it to us we must study it. Just so in breeding, in order to determine what bull to breed a certain cow to we must study both animals, watch them and watch their offspring and keep watching, for the art of breeding is not learned in a day, nor in fact, has it ever been mastered by any human being, for was there ever an animal that you could call perfect, and did not need "fixing" somewhere? This being true why should you not take advantage of information, in the way of results, attained by others and apply yourselves to the studying of the art of

breeding and feeding? Who of you would not be willing to devote the remainder of your life if you could leave as heritage the fame of a Cruickshank, and yet, have you not greater opportunities than any of those noted breeders? The success you attain will depend largely upon your ability and willingness to learn.

In order to encourage the breeders of Indiana in this noble work of nature this Association has for the past few years offered prizes, at our State Fair, for the best Shorthorn bred and exhibited by the owner. We voted to do this at our last annual meeting but the members failed to respond with subscriptions enough to warrant the committee in making the offer and so it went by the board, since the committee had no instructions from the Association to have the Treasurer to pay these awards out of his own pocket, as he undoubtedly would have done had you so directed. If it is the desire of this Association that it should offer premiums at our next State Fair, I would recommend that subscriptions to that fund be taken at this meeting so that the next committee will have something to work on in time.

Of course the giving of premiums at the State Fair is not the main object of this organization. If it were, I should feel that the efforts of your Executive Committee of the past year had been in vain. The main object of this and all similar organizations, as I take it, is for the improvement of the Shorthorn. As we all know and as the public in general concede, the Shorthorn is the best breed of cattle for beef and milk. In other words the Shorthorn cow is the best dual-purpose cow known to mankind, and in order that we may maintain her in this exalted position, we, as an organization, hold these meetings, so as to come into closer touch with other breeders and not become narrow and contracted but broaden out and expand, thereby becoming the better judges as to the best way to accomplish our purpose.

I have been a breeder of Shorthorn cattle for only a little over two years, and yet I can truthfully say that those two have been the most pleasant years of my life. I love the business and have formed many new acquaintances among you and there are none who enjoy a genial acquaintance more than I, and I hope that I may forever merit the esteem of you all.

On motion, the Association adjourned till 1:30 p. m.

The meeting was called to order by the President at 1:30 p. m.

A paper on "The Importance of and Preparation of Show Steers," by F. W. Cotton, was read and discussed by Mr. Norman, Mr. Christian, Mr. Quick, J. E. Robbins and E. W. Bowen.

On motion, S. R. Quick, W. F. Christian, and J. E. Robbins, were appointed a committee to draft resolutions for our deceased brethren.

Mr. Downing, Secretary of Indiana State Board of Agriculture, being present, gave the Association a short talk on the classification of classes and the general exhibit at the coming State Fair.

The Committee on Resolutions reported, and the report was adopted.

Papers were read as follows: "Early Experiences in the Short-horn Business," by S. R. Quick; and "Some Observations Among British Herds," by W. S. Robbins.

The following was presented and, on motion, adopted:

Resolved, that we have two calf classes, senior and junior yearlings, and senior and junior calves.

On motion, the Secretary was instructed to raise money to be distributed in the above classes, also for senior and junior steers.

It was moved that bulls and heifers of this class be dropped, the property of the exhibitor.

The motion was carried.

Moved and seconded that the steer class be confined to Indiana breeders, bred and owned by Indiana exhibitors.

The motion carried.

On motion, the old officers were elected, except the Secretary.

On motion, John G. Gartin was elected Secretary for the ensuing year.

On motion the Association adjourned till their annual meeting in January, 1904.

REPORT OF PROCEEDINGS

OF THE

Indiana Corn Growers' Association.

[Extracts of opening remarks at meeting of Corn Growers at State House, January 5, 1903.]

Your presence here this morning signifies that the interest in the Corn Growers' Association is up-to-date. And why shouldn't it be, situated as we are in the midst of the corn belt; yes, in Indiana, a State that by its record of 1902 as a corn-growing State ranks among the first in so far as quality is concerned?

In your deliberations here today let me ask that the discussion be spirited and courteous and that upon this, the eve of an important era in the history of corn breeding, let there be much gained in a coming together of this nature by the best corn growers of the State. We have upon our program some able speakers on corn improvement besides, as listeners, men who have surely done their part as promoters of good, pure seed corn. I refer you to Cleve, Overstreet, Davis, Whitesides, Riley, Coleman, McMahan and Alexander, and many others you will hear from ere we adjourn.

We believe that the adoption of the score card has done more to elevate the standard of seed corn in our State than any one thing possible to bring to bear upon the average corn raiser, for in every instance where corn is exhibited, the fact that some one in that community has become familiar with the use of the same, and his exhibit is much nearer the ideal than is his neighbors, who is not familiar with the benefits of his experience, proves its worth.

In calling to your attention the importance of a successful organization I wish to say that corn is king, and when raised and fed upon our own farms of Indiana to improved cattle, hogs, sheep and horses, is it not high time that we set ourselves about trying to raise a corn that will yield sixty pounds or more to the bushel so that it may be made a profitable crop to grow, instead of being grown in a haphazard way without any regard to kind and quality, and much of the time at a loss so far as labor and from a financial point is concerned. Let me again ask that you remain during the session and give us your time and ear and join us in anything of interest that may not be made clear by the speakers.

THE HOW AND THE WHY IN THE CULTIVATION OF CORN.

The preparation of the seedbed should receive careful consideration; not only its depth, but the texture and the distribution of manure and humus-making material from top to bottom.

A seedbed seven inches to nine inches deep will pay any year, and particularly in a dry season.

If the subsoil is too near the top for such deep plowing it will pay to go a little deeper each year, plowing under plenty of straw, weeds or coarse manure to make it loose.

To get this material well mixed with the soil, it is often advisable to use a sharp disc harrow before the plow. When thoroughly harrowed there will be no clods in the bottom of the furrow too deep to be pulverized after the plowing is done.

Disking before plowing will also prevent evaporation from the surface and the consequent drying of the soil before it can be plowed.

Having a thoroughly pulverized, moist seedbed it is desirable on most soils to plant in shallow furrows three feet six inches to three feet ten inches apart. If planted in furrows the roots will start deeper and the gradual filling of the furrows will prepare the plant to better withstand both drought and wind. Moreover, the weeds can be more easily controlled by this method.

The first and often the second cultivation is with a harrow or weeder preceded by a roller if necessary. Sometimes the soil can not be properly prepared before the planting must be done. Under such conditions the roller and harrow should be used before the corn comes up, running the roller across and the harrow lengthwise of the rows.

If used just when needed harrows and weeders will kill weeds cheaper and better than any other tools.

To air the soil after the corn is well up, a double cultivator with narrow shovels is used, allowing it to go deep, the fenders preventing too much dirt from covering the corn.

[Mr. Collins took issue with the speaker at this point, stating that when a large growth of clover is plowed into black soil it is too loose already. This was granted, but as very exceptional in clay land.]

Unless the soil is compacted by heavy rains the next and all succeeding cultivation is shallower, but the root growth be not disturbed.

The cultivation continues until ears are formed, using one-horse tools, i. e., cultivators, harrows or drags. A board clamped to the rear of the one-horse cultivator will regulate the depth and assist in making a surface mulch, the object of these late cultivations being to check evaporation, that all available soil moisture may be used to perfectly mature the plant.

SELECTION OF CORN FOR EXHIBITION.

Much depends on the drainage and condition of the soil, seed, seed-bed and cultivation, before corn can be successfully selected for exhibition.

The drainage question is large within itself, as it is the first thing to be considered in a successful corn crop in either wet or dry seasons, and aids much toward the condition and fertility of the soil. After the land is well underdrained the condition of the soil then depends much on clover crops, plenty of manure and on never cultivating too wet or letting stock have free access to fields during wet weather.

With proper management of the soil the seedbed is easily prepared and remains in splendid condition for cultivation through the entire season.

The seed being a very important question, it is necessary that the grower should understand the six or eight standard varieties of corn, and grow the variety most adapted to his soil and climate.

The principal varieties of corn grown today in Indiana are "Leaming," "Johnson County White Dent," "Riley's Favorite" and "Boone County White." It is necessary that the characteristics of each variety be studied that we may know how best to secure pure seed, and seed that will largely reproduce itself.

Every corn grower should study the general score card and also the score card on standard varieties. It not only aids him in selecting his seed for planting, but it is the key to successful selection of corn for exhibition. The exhibitor knows by what rules his corn is to be judged, and the judges must be confined strictly to those rules, and place on the card attached to each entry the score on each point, that the exhibitor may know wherein he has failed. This is a great educator to the inexperienced exhibitor of corn.

If I was to exhibit "Rileys Favorite" yellow dent corn, the first thing I should do would be to thoroughly understand the characteristics of that variety. I would know that the ears should be slowly tapering, with straight rows of kernels, deep yellow in color with red cob. In no point are impure varieties so easily distinguished as in color. White cob in yellow corn should disqualify the exhibit. Four or five white kernels in each ear would give a marking of 0.

Market condition would call for well-matured corn kernels firmly set on cob; no kernels lost, decayed, worm or mice eaten. In selecting for tips in this variety the ears, as I have said before, are permitted to taper slowly, but the tips should not be pointed, but rounded, or capped by long, even kernels, showing trace of rows to the center of cap.

The butts of each ear should be deeply rounded with deep, uniform kernels. The shank on ear-stalk of this variety is medium in size.

No point in exhibiting corn can be governed so effectively as by removing all the shank or ear-stalk, so as to give a full view of all kernels as connected with cob. Uniformity of kernel would next be considered, the shape of kernel in each ear of the exhibit must be uniform. The size should be the same in each ear and the depth, width and general shape must be considered. This does not call for perfectly shaped kernels, but demands a uniform kernel. The exhibitor must not be confused in the point 7, uniformity of kernel and point 8, shape of kernel.

An exhibit may have a rather poorly shaped kernel but uniformly good, which would deserve a creditable marking, as it denotes purity of breed and may be a distinct characteristic of the variety exhibited. As to the real value of the corn, shape is much more important than uniformity. It has much to do with space between rows, and this with per cent. of shelled grain to cob.

A perfect kernel is long, wedge shape and in it contains the elements of food, that by breeding it may be changed so as to make it more valuable for the different demands of corn.

A well proportioned ear is in length four times the diameter. The general score card gives length from 10 to 11 inches and circumference $7\frac{1}{2}$ to 8 inches. The standard on Riley's Favorite is, length 9 inches, and circumference 7 inches.

Next would come space between rows. This not only should apply to the furrow at the top of the rows of kernels, for usually when there, there is corresponding space at the small end of the kernel.

Side space should also be considered, long kernels and closely fitted add very much to the value of the corn.

The last point considered is the per cent. of shelled grain, which is found after shelling a few ears, by a simple problem in percentage. The result usually corresponds with the other points of the score card; because, if market condition, tips, butts, shape of kernels and space between rows are good, the per cent. of shelled grain will be high. Thus, for successful exhibiting, I would follow the score card on other standard varieties. For example, take the "Johnson County White Dent" with which the writer is most familiar, knowing the true tips of this variety I would be able to make a selection that would score high on uniformity of exhibit, selecting ears ten inches in length, cylindrical in shape, white kernel with white cob, perfect in condition, tips of ears nicely filled with well-formed kernels, butts deeply rounded, with uniform kernels, the kernel generally uniform and of good shape, length and circumference right, with very little space between rows. This would insure a good percentage of shelled grain and a high marking on the total score.

It is a difficult task, and requires much time to make first-class selection that will win when in competition with the entire corn belt.

The score card must be understood and followed closely to be able to exhibit corn successfully.

PLAN OF STORING SEED CORN.

L. B. CLORE, FRANKLIN, IND.

Corn is husked and hauled to dry-house by the ordinary corn husker, but is unloaded by expert corn men handling each ear by hand and making two assortments; the ears that are nicely developed, of good size and show a good uniform kernel are placed in dry-house for seed, while the remainder of the load is unloaded for market or feeding purposes. My dry-house is constructed so as to hold about 1,500 bushels of ear corn, first, by placing ears on racks that are parallel with the heater, or by a thin layer of corn in loft directly over heater. After drying there a few days it is then put in narrow cribs 4 feet wide 10 feet high and 50 feet long with 6 inches of air space between crib and side of building, the crib being located in same building that heaters are in.

The dry building has twenty large windows for ventilation on dry, warm days. After the dry-house is filled, the same care is taken in selecting out seed, but it is placed in out cribs prepared for ordinary corn and left for the Allwise to dry by His heater.

CELLAR STORED SEED CORN—WHY I PREFER IT.

CHARLES BUCKLEY, DELPHI, CARROLL COUNTY.

I am a strong advocate of seed corn that has been wintered in the cellar. I believe that corn that is kept in this way, where the temperature varies so little, for six months will make a more vigorous growth than where it is kept in a dry-house. I believe that there is just sufficient moisture in the atmosphere of the cellar to keep the germ from becoming too dry, as it is apt to do when kept in any other way. Experience has convinced me, as well as many of my friends and neighbors, that corn so kept will have a large, full germ, will germinate sooner, grow stronger, and will, therefore, produce more per acre. Most farmers will agree with me, that in this changeable climate, where freezing and thawing are continually teetering during six months of the year, that seeding corn is liable to have the germ weakened unless it can be kept in some place where, as I said before, the temperature is not subject to variation.

As corn is an absorbent of moisture, there are few farmers who have realized the results and will agree with me that seed corn should never freeze. While freezing will not kill the germ, yet it has a tendency to weaken it, and the stalk produced from a frozen grain will lack the strength we wish it to have.

It may do to pick seed corn from the crib in new countries where there is virgin soil to work with, but not in our State, where the land must be fed and cared for as we do our stock, if we would realize good financial results. It behooves us to make, not two stalks grow where one grew formerly, but the one stalk produce doubly the weight of corn that it did. And how can we do this? Why, by giving the most careful attention to the selection and storage of the seed. You may have your ground in the best of tilth at planting time; you may have harrows and discs and plows galore, but the foundation of your crop is the seed, and the better it can be kept the surer you are of a reward for your labor. The secret of every farm crop lies in the seed. Of course there are climatic conditions over which we have no control, which may make or mar our success, but I believe so far as human efforts are concerned that if we do our best and have the foundations good, profitable results will come.

We want to get all we can from Old Mother Earth, and the best is none too good for us. We don't need to plow deeper nor plant earlier, we first want to take the proper care of our seed, after making a good selection, and we will be rewarded with crops which will grow better year after year.

STORING SEED CORN.

W. A. ALEXANDER, RUSHVILLE, IND.

This is my plan for storing seed corn, which is in substance about the same which I gave in my talk at the Association.

Gather the corn in early autumn, and I would advise, if your time is not limited, to take a basket, go into the field, and select the choicest ears. If this is not convenient, sort carefully while unloading corn in the crib, selecting the best ears. Then rick them up where they will dry immediately, and where the air can circulate freely between the rows.

The place that I use is over the driveway of my double-slat crib, which is twelve by fourteen. These cribs are 5 by 14 by 30 feet, set on stone posts about three feet above ground, being narrow and tall and above ground, so the air can circulate through it.

This crib is covered with a sheet-iron roof, and in the early fall days is as hot as an oven. As the sun shines upon it, through this, you might say the corn is kiln-dried, the only redeeming feature I find in the sheet-iron roof.

The secret of corn raising is in getting good seed, that will shell not less than eighty-five per cent., let it be yellow, white or mixed, then to have it thoroughly dried before the early freezing. When once dried you need not fear the sudden changes of temperature, if kept where snow and rain can not fall upon it.

I once had some corn attached to the crib roof of an open shed, which was exposed to the wind, which had a sweep of many miles. The thermometer dropped to twenty-eight below zero. My neighbors said my corn would be ruined, but I planted it the next spring, and do not think there was a grain amiss.

Do not put your seed corn in boxes or barrels, especially salt barrels, for the salt will damage the germ.

After shelling, keep in a dry place, as it is more susceptible to the weather after being taken from mother cobs.

REPORT
ON
FARMERS' INSTITUTES

UNDER THE AUSPICES OF

PURDUE UNIVERSITY SCHOOL OF
AGRICULTURE

FOR THE

Year Ending June 30, 1903.

SUPERINTENDENT'S REPORT.

FARMERS' INSTITUTES.

REPORT OF SUPERINTENDENT.

Introductory.—The work of the year has been conducted along the lines of previous years. In addition to the usual office work of securing and assigning speakers, making up the schedule of institutes, etc., meetings were held as follows: Two district institutes were held in August, 1902, and the fifth annual conference of institute workers in October of the same year; 178 two-day institutes and three one-day dairy institutes, making a total of 184 meetings held. Nearly all of these meetings were previously arranged for, as per schedule which appears later in this report. As heretofore, two speakers were assigned to each of the two-day institutes; one speaker was sent to each of the one-day meetings. A lecturer on domestic economy was sent to thirty-eight of the two-day institutes. The average attendance at the several meetings held was somewhat reduced, as might be expected, from the greater number of meetings. This may reasonably be expected from the plan of holding supplemental institutes at outlying points; those who can attend a nearby institute will not make the same effort as heretofore to reach meetings further away.

Thus far, the plan of holding supplemental institutes at points midway between the places of annual meetings is working well, and the general management feels warranted in continuing the plan, the aim being to place these meetings at new points from year to year until meetings have been held within easy reach of every farmer in the State.

For a more complete statement of the work of the year, the reader is referred to the several divisions of this report which follow.

DISTRICT FARMERS' INSTITUTE.

A district farmers' institute for horticulturists and gardeners was held at Princeton, August 26-27, 1902. A two-day meeting of five sessions was held. The average attendance was, perhaps, not greater than seventy-five. The weather preceding the time of meeting had delayed the maturing of the melon crop somewhat, so that the melon growers were very busy marketing their crop at the time of the meeting. This, doubtless, considerably reduced the attendance.

The character of the meeting, which was a most interesting and profitable one, will appear from the outline program given below:

OUTLINE PROGRAM.

First Session.

Fruit Interests of Southwestern Indiana, Present and Prospective—Judge C. A. Buskirk, Princeton.

A Gardener's View of Southwest Indiana—W. J. Ritterskamp, Princeton.

Second Session.

How to Promote Our Horticultural and Gardening Interests—N. P. Hines, Boonville.

Birds in Their Economic Relations to the Farmer—A. W. Butler, Indianapolis.

Third Session.

Opportunities for Educating Young Men in Agricultural Pursuits—H. F. McMahan, Liberty.

Home and the Home Maker—Miss Laura G. Day, Wichita, Kas.

Fourth Session.

The Apple and Pear—J. A. Burton, Orleans.

Small Fruits—Mrs. A. L. Smith, Princeton.

Fifth Session.

Practical Melon Culture:

(1) The Cantaloupe—James Compton, Patoka.

(2) The Watermelon—Ray Montgomery, Owensville.

Some Diseases of Melons—Dr. J. C. Arthur, Purdue University.

Combating Insects Injurious to Plant Life—F. M. Webster, Champaign, Ill.

Music and informal discussions were interspersed throughout the program.

A district stockman's institute was held at Anderson, August 28-29. This meeting was in the interest of farmers who grow and feed butchers' stock. The following is an outline of the program:

First Session.

The Agricultural Outlook—H. F. McMahan, Liberty.

Line of Progress in Animal Husbandry—Mrs. Virginia C. Meredith, Cambridge City.

Second Session.

Types of Sire and Dam—J. H. Miller, Peru.

Growing Beef—L. H. Kerrick, Bloomington, Ill.

Third Session.

Opportunities for Young Men Who Secure an Agricultural Education—
President W. E. Stone, Purdue University.

Why and How Educate the Home Maker—Miss Laura G. Day, Wichita,
Kan., and Mrs. Meredith, Professor of Home Economics, University
of Minnesota.

Fourth Session.

Feeding Sheep and Lambs—Walter Wood, Pendleton.

Best Methods of Feeding—J. J. W. Billingsley, Indianapolis.

Fifth Session.

Food and Energy—H. P. Armsby, Director Pennsylvania Experiment Sta-
tion.

Securing a Market:

(1) Establishing a Reputation—F. H. Rankin, Champaign, Ill.

(2) A Clean Bill of Health—Dr. A. W. Bitting, Veterinarian Purdue
Agricultural Experiment Station.

Selling—A. G. Burkhart, Tipton.

The several topics presented were freely discussed by the audience.
The meeting was considered a highly profitable one. The attendance aver-
aged about 125.

ANNUAL CONFERENCE OF INSTITUTE WORKERS.

The Fifth State Conference of Institute Workers was held at Purdue
University, October 14 and 15, 1902. In interest and attendance this
conference far exceeded any preceding one. Every county in the State,
except six, was represented by one or more persons—generally by the
county chairman or secretary. The counties without representation were:
Daviss, Knox, Noble, Orange, Perry and Sullivan.

The full program of the conference is as follows:

PROGRAM.

Tuesday, 9:30 a. m., N. W. Slater, Marshfield, Presiding.

Invocation—Rev. T. F. Herman, Pastor German Reformed Church, La-
fayette.

Greeting—President W. E. Stone.

Our Live Stock and Dairy Interests—

Why and How Encourage the Dairy Industry?—C. P. Goodrich, Ft.
Atkinson, Wisconsin; Prof. H. E. VanNorman, Purdue University.

Live Stock Husbandry and Agricultural Prosperity—L. H. Kerriek,
Bloomington, Ill.; Prof. J. H. Skinner, Purdue University.

Questions—Announcements.

1:30-2:30 p. m. Inspection of Buildings and Laboratories.

Tuesday, 2:30 p. m., A. A. Burrier, Roseburg, Presiding.

Our Agricultural and Horticultural Interests—

Progress in Horticulture, Why and How?—Judge C. A. Burkirk,
Princeton; Prof. J. Troop, Purdue University.

Agricultural Advancement, Ways and Means—Alva Agee, Cheshire,
Ohio; Prof. H. A. Huston, Director Experiment Station.

Questions.

Tuesday, 7:30 p. m., Mrs. Lydia Evans, Plymouth, Presiding.

Educational Session, in the Interest of the Young People.

Music.

Nature Study, Its Purpose, Progress and Promotion—Prof. Stanley M.
Coulter, Purdue University.

Questions.

Music.

Good Home Reading and How to Have It—Miss Merica Hoagland,
State Library Organizer, Indianapolis.

Questions.

Music.

Wednesday, 9:30 a. m., F. S. Tyner, Elizabethtown, Presiding.

Invocation—Rev. W. E. McKenzie, Pastor St. Paul's M. E. Church, La-
fayette.

Informal Conference for Speakers—Conducted by W. B. Flick, Lawrence.

Suggested Topics for Consideration: The Institute Speaker.—How
chosen—his qualifications, character, standing, practical knowledge and
ability to instruct—his preparation—his notification his relation to the
Chairman—his relation to the other speakers—his ability to adapt himself
to the needs of the Institute—his fitness for the place assigned him in
the program—his helpfulness—true test of a speaker's merit.

The views of chairmen are desired on the above and other subjects
relating to Institute speakers.

Wednesday, 1:30 p. m., R. H. Wood, Madison, Presiding.

Resolutions—Miscellaneous Business.

Informal Conference for Local Institute Officers.—Conducted by H. F.
McMahan, Liberty.

Suggested Topics for Consideration: The Institute Chairman.—How
chosen—his qualifications, character, standing, public spirit and peculiar

fitness for the work—his relation to the cause he represents, to the audience, to the speakers and to the State Superintendent of Institutes—his ability to advertise, organize and conduct an Institute.

The Secretary.—His selection and general qualifications—his ability to call, announce and report meetings—his willingness to co-operate with Chairman and committees—the value of an efficient Secretary.

The Institute.—How to prepare for and advertise it—how to make it most productive of good to Agriculture and to the entire community—obstacles to a successful Institute, how removed—location of the Institute—bringing it to the people—making the Institute attractive and helpful to the boys and girls, the young people, the farmers' wives, the farmers, the stockmen, the dairymen, the fruit growers, the gardeners, the business and professional men.

The views of speakers and chairmen are desired on the above and related subjects.

The following resolutions, which were unanimously adopted, fittingly set forth the general spirit and trend of the Conference:

RESOLUTIONS OF THE FIFTH ANNUAL CONFERENCE OF STATE FARMERS' INSTITUTE OFFICERS AND WORKERS.

Whereas, The Farmers' Institute work in this State has been advanced in a most satisfactory manner under the auspices of Purdue University School of Agriculture and the efficient services of Prof. W. C. Latta, as superintendent; and

Whereas, The progress of the work has served to broaden our view of the need of increasing the interest and zeal among those who have co-operated with the superintendent in the past progress of the undertaking, to the end that the great mass of farmers may be reached and advanced in this most ennobling calling; therefore,

Resolved: 1. That the most hearty co-operation of the chairman and other officers in each county and district in the State is most earnestly requested, in order that the widest possible range of efficiency and helpfulness of the work may be extended to all the farmers and others in this State.

2. That the selection of a chairman and other officers in each county or district should be made with care—looking to the best efficiency of the work, that it is indispensable to select men of character and efficiency, those who are in touch with the progress and needs of the hour in the line of agricultural pursuits, and that such only should be selected for future service.

3. That the Institute is not simply a place to be entertained and amused, but rather the means of instruction in the useful and practical truths in agriculture, to the end that all who are in attendance may take with them to their homes and put into practice in their life work the many valuable suggestions and experiences brought out in these agricultural schools.

4. That in preparing programs for Farmers' Institutes more care should be had in specializing the sessions by having kindred subjects grouped together so as to secure a wide range of information.

5. That we recommend a careful consideration of the sample programs prepared by Superintendent Latta, to outline, as far as practicable, the arrangement of subjects to be treated.

6. That in the selection of persons to take a place on the program due care should be had to secure the services of those that have the ability and experience requisite to treat the subject assigned to them intelligently and instructively.

7. That there is a great need throughout the State to interest and enlist the young men and young women in the institute work; that in order to do this, more effort should be made to secure the active service of young men and young women, by assigning them, with their consent, to places on the program, and award them with the needed encouragement when they have rendered the service.

8. That the interest of our homes and homemakers deserves a prominent place in the institute work, to the end that we may secure a wider and deeper interest in advancing the institute work and the betterment of home life.

9. That more attention should be given to advertising the meetings of the institute by the use of postal cards, circulars, the local press, bills and posters, and many other ways of reaching all farmers and their families in the country, or district, particularly the out townships.

10. That while we recognize the wisdom and foresight which led the Legislature of our State to increase the appropriation for the Farmers' Institute work in this State, we also recognize the need and justice of putting Purdue University upon a like basis with other institutions in the State, so that all needed facilities may be secured to make our State in agricultural instruction and advantages the equal of any other State.

11. That we favor the teaching of nature in our common schools and recommend that the chairman present the matter to the institute for further consideration.

12. That it is the sense of this conference that the entertainment, viz., hotel accommodations and luncheon, furnished by the university, also reduced railroad rates, is highly appreciated and much enjoyed by all.

Resolved, That we tender our thanks to those who have arranged for this annual conference of institute workers and chairmen, ladies and gentlemen, in the preparation of a most admirable program and in secur-

ing the services of distinguished agriculturists and specialists from other States and local talent of a high order, to instruct and broaden our thought and quicken our activities in the future of this very important work—promoting, as it has and will, the prosperity of our State and nation.

J. J. W. BILLINGSLEY,
MRS. J. C. ERWIN,
C. B. BENJAMIN,
MRS. W. L. BERRYMAN,
N. P. HINES.

SAMPLE OF PROGRAM FOR THE GUIDANCE OF PROGRAM COMMITTEES.

Prior to the annual conference the Superintendent prepared a sample program to assist the local authorities in making up programs for their several meetings. This was distributed at the time of the conference, and later sent out to county chairmen in connection with the schedule of meetings and list of speakers. The purpose of this program, which is given below, was to indicate how kindred subjects might be grouped together for a number of special sessions, each bearing upon some general theme of especial interest to the people of the locality.

[Sample Program.]

[Page One.]

PROGRAM

Of.....County
.....Farmers' Institute,
(Annual or Supplemental.)
Under the Auspices of

PURDUE UNIVERSITY SCHOOL OF AGRICULTURE.

At.....
(Name Hall, Church or School Building.)
.....Ind.
(Name of City or Town.)
.....
(Days of Week and Month, and also the Year.)

Especially for those who are interested in the Promotion of Agriculture, and the Prosperity of the Agricultural Classes.

All are cordially invited to attend. Every session Open and Free to all.
Remember the Date. Preserve this Program.

[Page Two.]

.....
(Day of Week and Month.)

9:30 a. m.

Music.

Invocation

Music.

Opening Remarks by Chairman.....

The Improvement of the Soil—

Drainage

Discussion.

Renewing the Supply of Humus.....

Discussion.

Fertilization

Discussion. Announcements.

.....
1:30 p. m.

Music.

Live Stock Session—

Importance of Improved Live Stock.....

Discussion.

Profits in Good Live Stock.....

Discussion.

Kinds Best Suited to the Locality.....

General Discussion.

.....
7:30 p. m.

Music.

General and Educational—

Nature Study in the Public Schools.....

Questions.

Home Reading for the Boys and Girls.....

Music.

Sanitary Homes

Discussion.

Music.

[Page Three.]

.....
(Day of Week and Month.)

Music.

Invocation

Music.

Horticulture—

Fruit Possibilities of the Locality.....
Questions.

My Experience with Small Fruits.....
Discussion.

Commercial Orchardng
General Discussion.

1:30 p. m.

Music.

Miscellaneous Business and Election of Officers, etc.

Farm Dairying—

Why are Dairy Sections so Prosperous?.....
Questions.

Private Dairying—Its Advantages and Disadvantages.....
Discussion.

Should We Establish a Creamery?.....
Questions. General Discussion. Adjournment.

[Page Four.]

SUGGESTIONS.

If a four-page program is decided upon, the last page may be leased to an enterprising business firm that will print an ample number of programs if permitted to insert an advertisement on said page. No "Ad" should be placed on the other pages of the program.

The form of program may vary to suit the taste, but the plan of Special Sessions set forth in the preceding pages of this program will prove highly satisfactory if carefully carried out.

The subjects of the assigned speakers may not always be exactly suitable for special sessions. As a rule, however, general subjects may be chosen that will include many of the topics of the assigned speakers.

The following are good general themes for special sessions:

- Agricultural adaptations of the county;
- Conditions of success with live stock;
- Manures and fertilizers;
- The home;
- Farm sanitation;
- The young people;
- Co-operation among farmers;
- Business methods on the farm.

It will be easy to choose two or three sub-topics that will come appropriately under each of the above general headings.

W. C. LATTA,

Purdue University,
Lafayette, Ind., October.

Supt. Farmers' Insts.

A considerable number of chairmen acted upon the suggestions contained in the sample program, but a larger number apparently paid no attention to the suggestions contained therein. This was, perhaps, not due to indifference on the part of local chairmen, but rather to inability on their part to arrange a special program suitable to their several localities with the workers at their command. The Superintendent will be glad to lend further assistance by revising programs whenever it is desired. It is believed in this way that the work of the institutes can be rendered more effective.

SCHEDULE OF FARMERS' INSTITUTES FOR 1902-1903.

The following is a schedule of the annual and supplemental institutes, as arranged by the Superintendent for the current season :

NOVEMBER.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
*Dearborn, Dillsboro..... W. P. Beckett, Dillsboro.....	Monday, Nov. 10..... Tuesday, Nov. 11.....	H. P. Miller. H. F. McMahan.
*Dearborn, New Alsace..... John Feast, Yorkville.....	Wednesday, Nov. 12..... Thursday, Nov. 13.....	
*Ohio, Bear Branch..... E. L. Turner, Bear Branch.....	Friday, Nov. 14..... Saturday, Nov. 15.....	
*Jennings, Benville..... Jos. Ralston, Benville.....	Monday, Nov. 10..... Tuesday, Nov. 11.....	
*Clark, Watson..... W. P. Bottonff, Utica.....	Wednesday, Nov. 12..... Thursday, Nov. 13.....	
*Harrison, Lanesville..... J. A. Harbison, Breckenridge.....	Friday, Nov. 14..... Saturday, Nov. 15.....	H. S. Wolfe. N. P. Hines.
*Harrison, Elizabeth..... G. W. Lambe, Elizabeth.....	Monday, Nov. 10..... Tuesday, Nov. 11.....	W. B. Flick. J. J. W. Billingsley.
*Perry, Celina..... Jesse Cunningham, Celina.....	Wednesday, Nov. 12..... Thursday, Nov. 13.....	
*Spencer, Rockport..... J. A. Haines, Rockport.....	Friday, Nov. 14..... Saturday, Nov. 15.....	
Jennings, North Vernon..... P. B. Ewan, Hayden.....	Wednesday, Nov. 12..... Thursday, Nov. 13.....	
Jefferson, Volga..... R. H. Wood, Madison.....	Friday, Nov. 14..... Saturday, Nov. 15.....	
Crawford, English..... J. F. Zimmerman, Wickliffe.....	Monday, Nov. 17..... Tuesday, Nov. 18.....	H. F. McMahan. Mrs. C. M. Thomas.
Perry, Don Juan..... J. J. Wheeler, Rome.....	Wednesday, Nov. 19..... Thursday, Nov. 20.....	

NOVEMBER—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
Warriek, Boonville	Friday, Nov. 21	H. F. McMahan.
C. C. Ferguson, Boonville	Saturday, Nov. 22	J. H. Gwaltney.
Orange, Orleans	Monday, Nov. 17	H. S. Wolfe.
A. A. Turley, Orleans	Tuesday, Nov. 18	J. J. W. Billingsley.
Ohio, Rising Sun	Wednesday, Nov. 19	J. J. W. Billingsley. Mrs. O. E. Carter.
W. B. Harris, Rising Sun	Thursday, Nov. 20	
Switzerland, Vevay	Friday, Nov. 21	
John P. Porter, Vevay	Saturday, Nov. 22	
Vanderburgh, Stringtown	Monday, Nov. 17	H. P. Miller. Mrs. J. C. Erwin.
W. C. Goldsmith, Evansville, R. 3	Tuesday, Nov. 18	
*Gibson, Hazelton	Wednesday, Nov. 19	
Wm. Steelman, Hazelton	Thursday, Nov. 20	
Sullivan, Sullivan	Friday, Nov. 21	
Richard Taylor, Farmersburg	Saturday, Nov. 22	

DECEMBER.

Scott, Scottsburg	Monday, Dec. 1	Mrs. J. W. Bates. J. H. Gwaltney.
L. B. Stewart, Scottsburg	Tuesday, Dec. 2	
Clark, New Washington	Wednesday, Dec. 3	
J. W. Williams, Henryville	Thursday, Dec. 4	
Ripley, Holton	Friday, Dec. 5	T. A. Coleman. Mrs. J. W. Bates.
Geo. C. Miller, Dillsboro	Saturday, Dec. 6	
Washington, Salem	Monday, Dec. 1	Mrs. J. M. Bloss. H. P. Miller.
J. W. May, Salem	Tuesday, Dec. 2	
Floyd, New Albany	Wednesday, Dec. 3	
Geo. Harrell, Duncan	Thursday, Dec. 4	
Harrison, Corydon	Friday, Dec. 5	J. A. Burton. H. P. Miller.
J. S. Pfrimmer, Breckenridge	Saturday, Dec. 6	
Fountain, Veedersburg	Monday, Dec. 1	O. F. Lane. Mrs. F. Ross.
Albert Campbell, Hillsboro	Tuesday, Dec. 2	
*Montgomery, Wingate	Wednesday, Dec. 3	T. J. Lindley. O. F. Lane.
C. R. McKinney, Wingate	Thursday, Dec. 4	
Dubois, Huntingburg	Monday, Dec. 1	J. J. W. Billingsley. U. M. Stewart.
E. B. Hemmer, Holland	Tuesday, Dec. 2	
Spencer Chrisney	Wednesday, Dec. 3	
C. C. Dawson, Grandview	Thursday, Dec. 4	
Pike, Winslow	Friday, Dec. 5	J. J. W. Billingsley. Mrs. C. M. Thomas.
J. D. Selby, Petersburg	Saturday, Dec. 6	
*Wayne, Boston	Wednesday, Dec. 3	H. F. McMahan. D. B. Johnson.
G. R. Hart, Boston	Thursday, Dec. 4	
*Wayne, Economy	Friday, Dec. 5	
E. T. Veal, Economy	Saturday, Dec. 6	
Greene, Bloomfield	Monday, Dec. 8	J. J. W. Billingsley. J. H. Gwaltney.
Gross Antibus, Lyons	Tuesday, Dec. 9	
Daviess, Washington	Wednesday, Dec. 10	
P. McHenry, Plainville	Thursday, Dec. 11	
Knox, Oaktown	Friday, Dec. 12	
Ellis House, Bicknell	Saturday, Dec. 13	
Owen, Spencer	Monday, Dec. 8	J. A. Burton. H. P. Miller.
E. L. Daggy, Spencer, R. R. 2	Tuesday, Dec. 9	

*Supplemental meetings.

DECEMBER—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
Clay, Clay City.....	Wednesday, Dec. 10.....	Mrs. O. E. Carter. H. P. Miller.
Silas Foulke, Cory.....	Thursday, Dec. 11.....	
*Clay, Poland.....	Friday, Dec. 12.....	
C. J. Wilkinson, Poland.....	Saturday, Dec. 13.....	
Decatur, Clarksburg.....	Thursday, Dec. 11.....	L. H. Kerrick. Miss G. Lindley.
Luther Hamilton, Clarksburg ..	Friday, Dec. 12.....	
Shelby, Shelbyville.....	Monday, Dec. 8.....	H. F. McMahan. D. B. Johnson.
Henry Pond, Shelbyville.....	Tuesday, Dec. 9.....	
Bartholomew, Elizabethtown.....	Wednesday, Dec. 10.....	D. B. Johnson. E. C. Martindale.
F. S. Tyner, Elizabethtown.....	Thursday, Dec. 11.....	
*Johnson, Edinburg.....	Friday, Dec. 12.....	
Albert Halstead, Edinburg.....	Saturday, Dec. 13.....	
Blackford, Hartford City.....	Monday, Dec. 8.....	Mrs. J. M. Bloss. C. B. Benjamin.
T. C. Clapper, Hartford City.....	Tuesday, Dec. 9.....	
*Delaware, Shideler.....	Wednesday, Dec. 10.....	H. F. McMahan. C. B. Benjamin.
Arthur Shoemaker, Daleville....	Thursday, Dec. 11.....	
*Huntington, Markle.....	Friday, Dec. 12.....	
S. W. Rarrick, Markle.....	Saturday, Dec. 13.....	
*Madison, Markleville.....	Monday, Dec. 8.....	T. S. Nugen. W. B. Flick.
A. T. McAllister, Pendleton	Tuesday, Dec. 9.....	
*Wayne, Cambridge City.....	Wednesday, Dec. 10.....	Prof. H. E. VanNorman. W. B. Flick.
Isaac L. Whiteley, Cambridge City	Thursday, Dec. 11.....	
Wayne, Fountain City.....	Friday, Dec. 12.....	Prof. H. E. VanNorman. Mrs. F. Ross.
J. C. Fulghum, Fountain City ..	Saturday, Dec. 13.....	
Parke, Rockville.....	Monday, Dec. 15.....	H. P. Miller. Prof. J. H. Skinner.
Thos. L. Nevins, Rosedale, R. R. 1	Tuesday, Dec. 16.....	
Montgomery, Crawfordsville.....	Wednesday, Dec. 17.....	H. P. Miller. Mrs. J. M. Bloss.
J. M. Harshbarger, Ladoga.....	Thursday, Dec. 18.....	
Vermillion, Dana.....	Friday, Dec. 19.....	
J. F. Robinson, Dana.....	Saturday, Dec. 20.....	
Wabash, Wabash.....	Monday, Dec. 15.....	Mrs. O. Kline. C. B. Benjamin.
Samuel Sholtz, Wabash.....	Tuesday, Dec. 16.....	
*Cass, Young America.....	Wednesday, Dec. 17.....	A. G. Burkhart. C. B. Benjamin.
O. C. Gard, Young America.....	Thursday, Dec. 18.....	
White, Monticello.....	Friday, Dec. 19.....	
E. P. Teeter, Headlee.....	Saturday, Dec. 20.....	
*DeKalb, Butler.....	Monday, Dec. 15.....	O. F. Lane. W. F. DeVilbiss.
W. L. Blaker, Butler.....	Tuesday, Dec. 16.....	
Noble, Albion.....	Wednesday, Dec. 17.....	
J. M. Schermerhorn, Brimfield ..	Thursday, Dec. 18.....	
*Kosciusko, Milford.....	Friday, Dec. 19.....	H. F. McMahan. U. M. Stewart.
Egbert Gawthrop, Milford.....	Saturday, Dec. 20.....	
*Washington, Chestnut Hill.....	Monday, Dec. 15.....	
J. W. May, Salem.....	Tuesday, Dec. 16.....	
*Washington, Claysville.....	Wednesday, Dec. 17.....	H. F. McMahan. U. M. Stewart.
J. W. May, Salem.....	Thursday, Dec. 18.....	
Lawrence, Bedford.....	Friday, Dec. 19.....	
D. W. Sherwood, Bryantsville....	Saturday, Dec. 20.....	
*Dubois, Hillham.....	Monday, Dec. 15.....	J. A. Burton. H. S. Wolfe.
Owen Simmons, Hillham.....	Tuesday, Dec. 16.....	

*Supplemental meetings.

DECEMBER—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
*Dubois, Holland.....	Wednesday, Dec. 17.....	J. H. Gwaltney.
H. B. Tormohlen, Holland.....	Thursday, Dec. 18.....	H. S. Wolfe.
Gibson, Owensville.....	Friday, Dec. 19.....	H. S. Wolfe.
W. D. Johnson, Owensville.....	Saturday, Dec. 20.....	Mrs. C. M. Thomas.
*Marion, Castleton.....	Monday, Dec. 15.....	J. J. W. Billingsley. W. A. Hart.
J. O. Kitterman, Castleton.....	Tuesday, Dec. 16.....	
Hamilton, Westfield.....	Wednesday, Dec. 17.....	
Milton Hanson, Westfield.....	Thursday, Dec. 18.....	
*Howard, West Liberty.....	Friday, Dec. 19.....	Prof. H. E. VanNorman. J. A. Burton.
Alfred Farrington, Jerome.....	Saturday, Dec. 20.....	
Brown, Nashville.....	Friday, Dec. 26.....	
J. F. Bond, Nashville.....	Saturday, Dec. 27.....	
Vigo, Terre Haute.....	Friday, Dec. 26.....	J. H. Gwaltney.
Chas. Yaw, Pimento.....	Saturday, Dec. 27.....	Prof. J. H. Skinner.
*Tippecanoe, Clarks Hill.....	Friday, Dec. 26.....	O. F. Lane.
G. W. Shaffer, Clarks Hill.....	Saturday, Dec. 27.....	

JANUARY.

Marshall, Plymouth.....	Friday, Jan. 2.....	Prof. J. H. Skinner.
P. E. Sarber, Plymouth.....	Saturday, Jan. 3.....	O. A. Somers.
Monroe, Bloomington.....	Friday, Jan. 2.....	Prof. H. E. VanNorman.
J. A. May, Clear Creek.....	Saturday, Jan. 3.....	H. S. Wolfe.
Jackson, Seymour.....	Friday, Jan. 2.....	J. J. W. Billingsley.
O. E. Carter, Seymour.....	Saturday, Jan. 3.....	Mrs. F. Ross.
Elkhart, Goshen.....	Monday, Jan. 12.....	Mrs. W. F. DeVilbiss. A. G. Burkhart.
Edward Bartholomew, Millersburg.....	Tuesday, Jan. 13.....	
St. Joseph, South Bend.....	Wednesday, Jan. 14.....	
E. A. Metzger, Granger.....	Thursday, Jan. 15.....	
Laporte, Laporte.....	Friday, Jan. 16.....	A. G. Burkhart.
H. W. Henry, Laporte, R. R. 1.....	Saturday, Jan. 17.....	C. B. Benjamin.
Adams, Decatur.....	Monday, Jan. 12.....	W. A. Hart.
C. D. Kunkle, Monmouth.....	Tuesday, Jan. 13.....	J. J. W. Billingsley.
Jay, Portland.....	Wednesday, Jan. 14.....	Mrs. O. E. Carter.
T. W. Logan, Westchester.....	Thursday, Jan. 15.....	J. J. W. Billingsley.
Grant, Marion.....	Monday, Jan. 12.....	A. Agee.
A. A. Burrier, Marion.....	Tuesday, Jan. 13.....	T. S. Nugen.
Hancock, Greenfield.....	Wednesday, Jan. 14.....	T. S. Nugen, 1st day. A. Agee, 2d day. Mrs. F. Ross.
Geo. Walker, Willow.....	Thursday, Jan. 15.....	
Henry, New Castle.....	Friday, Jan. 16.....	
Otis Stubbs, Lewisville.....	Saturday, Jan. 17.....	
*Montgomery, Waveland.....	Tuesday, Jan. 13.....	C. M. Hobbs. E. H. Collins.
C. H. Johnson, Waveland.....	Wednesday, Jan. 14.....	
*Parke, Rosedale.....	Thursday, Jan. 15.....	
A. H. Rukes, Rosedale.....	Friday, Jan. 16.....	
Putnam, Greencastle.....	Friday, Jan. 16.....	C. M. Hobbs. E. H. Collins.
L. A. Stockwell, Cloverdale.....	Saturday, Jan. 17.....	

*Supplemental meetings.

JANUARY—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
Allen, Fort Wayne.....	Monday, Jan. 12.....	O. F. Lane.
Geo. V. Kell, Hometown.....	Tuesday, Jan. 13.....	Mrs. O. Kline.
Steuben, Angola.....	Wednesday, Jan. 14.....	O. F. Lane.
John Harpham, Pleasant Lake..	Thursday, Jan. 15.....	Miss G. Erwin.
Dekalb, Garrett.....	Friday, Jan. 16.....	Mrs. J. C. Erwin
J. E. Dilgard, Waterloo.....	Saturday, Jan. 17.....	O. F. Lane.
*Steuben, Ashley.....	Monday, Jan. 19.....	J. N. Babcock. O. F. Lane.
C. S. Thompson, Ashley.....	Tuesday, Jan. 20.....	
*Steuben, Fremont.....	Wednesday, Jan. 21.....	
S. A. Wolf, Fremont.....	Thursday, Jan. 22.....	
Lagrange, Lagrange.....	Friday, Jan. 23.....	O. F. Lane.
L. E. Deal, Lagrange.....	Saturday, Jan. 24.....	Miss G. Erwin.
*Gibson, Oakland City.....	Monday, Jan. 19.....	D. B. Johnson. H. S. Wolfe.
E. C. Farmer, Sr., Oakland City	Tuesday, Jan. 20.....	
*Warrick, Newburg.....	Wednesday, Jan. 21.....	
D. F. Williams, Newburg.....	Thursday, Jan. 22.....	
Posey, Mt. Vernon.....	Friday, Jan. 23.....	D. B. Johnson.
L. F. Osborne, Farmersville....	Saturday, Jan. 24.....	Mrs. C. M. Thomas.
Wells, Bluffton.....	Monday, Jan. 19.....	O. A. Somers.
E. L. Chalfant, Bluffton, R. R. 1.	Tuesday, Jan. 20.....	Mrs. J. M. Bloss.
Fulton, Rochester.....	Wednesday, Jan. 21.....	O. A. Somers. A. G. Burkhart.
Isaiah Imler, Rochester.....	Thursday, Jan. 22.....	
Starke, North Judson.....	Friday, Jan. 23.....	
Fred Garing, North Judson.....	Saturday, Jan. 24.....	
*Benton, Otterbein.....	Monday, Jan. 19.....	H. F. McMahan. E. C. Martindale.
F. M. Maddox, Otterbein.....	Tuesday, Jan. 20.....	
Benton, Boswell.....	Wednesday, Jan. 21.....	
J. C. Dimmick, Boswell.....	Thursday, Jan. 22.....	
*Warren, Pine Village.....	Friday, Jan. 23.....	A. Agee. U. M. Stewart.
L. A. Sailor, Pine Village.....	Saturday, Jan. 24.....	
Clinton, Frankfort.....	Monday, Jan. 19.....	
D. F. Maish, Frankfort.....	Tuesday, Jan. 20.....	
Carroll, Flora.....	Wednesday, Jan. 21.....	A. Agee. U. M. Stewart.
G. W. Shanklin, Cutler.....	Thursday, Jan. 22.....	
Tippecanoe, Lafayette.....	Friday, Jan. 23.....	
S. W. Brady, Lafayette.....	Saturday, Jan. 24.....	
Lake, Crown Point.....	Monday, Jan. 19.....	Miss G. Erwin.
E. H. Hixon, Crown Point.....	Tuesday, Jan. 20.....	J. J. W. Billingsley.
*Porter, Hebron.....	Wednesday, Jan. 21.....	J. J. W. Billingsley. J. B. Burris.
Michael Wahl, Hebron.....	Thursday, Jan. 22.....	
Jasper, Kentselaer.....	Monday, Jan. 26.....	D. B. Johnson. Mrs. J. C. Erwin.
M. I. Adams, Kentselaer.....	Tuesday, Jan. 27.....	
*White, Wolcott.....	Wednesday, Jan. 28.....	
L. A. Geiger, Wolcott.....	Thursday, Jan. 29.....	
Newton, Goodland.....	Friday, Jan. 30.....	A. Agee. Mrs. F. Ross.
S. H. Dickinson, Goodland.....	Saturday, Jan. 31.....	
Fayette, Connersville.....	Monday, Jan. 26.....	
Grant Williams, Connersville....	Tuesday, Jan. 27.....	
Franklin, Brookville.....	Wednesday, Jan. 28.....	A. Agee. Mrs. F. Ross.
L. J. Wilson, Brookville.....	Thursday, Jan. 29.....	
Rush, Rushville.....	Friday, Jan. 30.....	
T. A. Coleman, Rushville.....	Saturday, Jan. 31.....	

*Supplemental meetings.

JANUARY—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
*Kosciusko, Silver Lake	Monday, Jan. 26	O. A. Somers. Miss G. Erwin.
Joshua Leffel, Silver Lake	Tuesday, Jan. 27	
Kosciusko, Warsaw	Wednesday, Jan. 28	
Egbert Gawthrop, Milford	Thursday, Jan. 29	
*Marshall, Bremen	Friday, Jan. 30	O. A. Somers. C. B. Benjamin.
S. A. Knoblock, Bremen	Saturday, Jan. 31	
Miami, Peru	Monday, Jan. 26	J. N. Babcock. Miss G. Lindley.
G. L. Allen, Pettysville	Tuesday, Jan. 27	
Howard, Kokomo	Wednesday, Jan. 28	
L. C. Hoss, Kokomo	Thursday, Jan. 29	
Johnson, Franklin	Friday, Jan. 30	H. S. Wolfe. A. G. Burkhart.
H. E. Lochry	Saturday, Jan. 31	

FEBRUARY.

Morgan, Mooresville	Monday, Feb. 2	Miss G. Lindley.
O. P. Macy, Mooresville	Tuesday, Feb. 3	H. F. McMahan.
Hendricks, Danville	Wednesday, Feb. 4	H. F. McMahan. W. B. Flick.
Lee Barnett, Danville	Thursday, Feb. 5	
*Boone, Jamestown	Friday, Feb. 6	
Marian Porter, Jamestown	Saturday, Feb. 7	
Cass, Logansport	Monday, Feb. 2	A. Agee. A. G. Burkhart.
J. P. Martin, Logansport	Tuesday, Feb. 3	
Whitley, Columbia City	Wednesday, Feb. 4	A. Agee. Mrs. O. Kline.
Geo. R. Knisely, Columbia City ..	Thursday, Feb. 5	
Porter, Valparaiso	Friday, Feb. 6	
J. W. Brummit, Valparaiso	Saturday, Feb. 7	
*Laporte, Westville	Monday, Feb. 2	C. B. Benjamin. J. N. Babcock.
E. S. Smith, Westville	Tuesday, Feb. 3	
*Porter, McCool	Wednesday, Feb. 4	
J. S. Robbins, McCool	Thursday, Feb. 5	
*St. Joseph, Osceola	Friday, Feb. 6	W. B. Flick. O. A. Somers.
C. M. Curtis, Osceola	Saturday, Feb. 7	
*Henry, Lewisville	Monday, Feb. 2	T. S. Nugen. O. A. Somers.
T. S. Nugen, Lewisville	Tuesday, Feb. 3	
*Rush, Carthage	Wednesday, Feb. 4	O. A. Somers. Mrs. F. Ross.
Wm. Walker, Carthage	Thursday, Feb. 5	
Union, Liberty	Friday, Feb. 6	Mrs. J. W. Bates. O. A. Somers.
James Eaton, Liberty	Saturday, Feb. 7	
Dearborn, Bright	Monday, Feb. 9	W. A. Hart. J. B. Burris.
T. B. Cottingham, Lawrenceburg ..	Tuesday, Feb. 10	
Tipton, Tipton	Monday, Feb. 9	
Wm. Ryan, Tipton	Tuesday, Feb. 10	
*Clinton, Kirklin	Wednesday, Feb. 11	J. J. W. Billingsley.
W. A. Huffine, Kirklin	Thursday, Feb. 12	
*Lake, Lowell	Friday, Feb. 13	J. B. Burris. Miss G. Lindley.
Albert Foster, Lowell	Saturday, Feb. 14	
Warren, West Lebanon	Friday, Feb. 13	Miss G. Lindley.
N. W. Slater, Marshfield	Saturday, Feb. 14	

*Supplemental meetings.

FEBRUARY—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE.	ASSIGNED SPEAKERS.
*Fountain, Covington.....	Monday, Feb. 9.....	H. F. WeMahan. U. M. Stewart.
L. D. DeHaven, Veedersburg....	Tuesday, Feb. 10.....	
*Fountain, Kingman.....	Wednesday, Feb. 11.....	
A. H. Lindley, Kingman.....	Thursday, Feb. 12.....	
*Hendricks, Pittsboro.....	Friday, Feb. 13.....	
J. W. Keeney, Pittsboro.....	Saturday, Feb. 14.....	
Marion, Acton.....	Wednesday, Feb. 11.....	Miss G. Lindley.
W. B. Flick, Lawrence.....	Thursday, Feb. 12.....	A. G. Burkhardt.
Madison, Anderson.....	Friday, Feb. 13.....	Mrs. F. Ross.
W. H. Thornburg, Gilman.....	Saturday, Feb. 14.....	A. G. Burkhardt.
*Blackford, Roll.....	Monday, Feb. 9.....	L. A. Stockwell. W. B. Flick.
Theodore Clapper, Hartford City	Tuesday, Feb. 10.....	
Delaware, Muncie.....	Wednesday, Feb. 11.....	
Arthur Shoemaker, Daleville....	Thursday, Feb. 12.....	
Boone, Lebanon.....	Friday, Feb. 13.....	
S. T. Stephenson, Lebanon.....	Saturday, Feb. 14.....	
*Fulton, Akron.....	Wednesday, Feb. 18.....	U. M. Stewart. H. F. McMahan.
F. S. Strong, Akron.....	Thursday, Feb. 19.....	
Huntington, Huntington.....	Friday, Feb. 20.....	
A. W. Colclesser, Huntington, R 6	Saturday, Feb. 21.....	
*Adams, Berne.....	Monday, Feb. 16.....	D. B. Johnson. W. A. Hart.
C. D. Kunkle, Monmouth.....	Tuesday, Feb. 17.....	
*Jay, Red Key.....	Wednesday, Feb. 18.....	
Lewis Dill, Red Key.....	Thursday, Feb. 19.....	
*Delaware, Oakville.....	Friday, Feb. 20.....	H. S. Wolfe. N. P. Hines.
G. H. Johnson, Oakville.....	Saturday, Feb. 21.....	
Martin, Loogootee.....	Monday, Feb. 16.....	
J. M. Sherfick, Shoals.....	Tuesday, Feb. 17.....	
*Jackson, Medora.....	Wednesday, Feb. 18.....	J. B. Burris. C. B. Benjamin.
C. C. McMillan, Medora.....	Thursday, Feb. 19.....	
*Bartholomew, Hartsville.....	Friday, Feb. 20.....	
F. S. Tyner, Elizabethtown.....	Saturday, Feb. 21.....	
Randolph, Winchester.....	Thursday, Feb. 19.....	J. J. W. Billingsley.
E. W. Hill, Winchester.....	Friday, Feb. 20.....	Mrs. O. E. Carter.
*Wells, Ossian.....	Monday, Feb. 16.....	O. F. Lane. O. A. Somers.
Evan L. Chalfant, Bluffton, R. R. 1	Tuesday, Feb. 17.....	
*Allen, Harlan.....	Wednesday, Feb. 18.....	
Sylvester Stopher, Harlan.....	Thursday, Feb. 19.....	
*Whitley, Laud.....	Friday, Feb. 20.....	J. B. Burris. C. B. Benjamin.
J. J. Goble, Columbia City, R. R. 1	Saturday, Feb. 21.....	
*Wells, Poneto.....	Monday, Feb. 23.....	
G. M. Gavin, Liberty Center.....	Tuesday, Feb. 24.....	
*Grant, Van Buren.....	Wednesday, Feb. 25.....	A. G. Burkhardt. C. M. Hobbs.
W. K. Frazier, Van Buren.....	Thursday, Feb. 26.....	
*Huntington, Bippus.....	Friday, Feb. 27.....	
A. G. Brookover, Bracken.....	Saturday, Feb. 28.....	
*Noble, LaOtto.....	Monday, Feb. 23.....	A. G. Burkhardt. C. M. Hobbs.
J. C. Kimmel, Ligonier.....	Tuesday, Feb. 24.....	
*Noble, Ligonier.....	Wednesday, Feb. 25.....	
J. M. Schermerhorn, Brimfield..	Thursday, Feb. 26.....	
*Noble, Kendallville.....	Friday, Feb. 27.....	
James Harvey, Kendallville.....	Saturday, Feb. 28.....	

*Supplemental meetings.

FEBRUARY—Continued.

PLACE OF MEETING AND CHAIRMAN OF INSTITUTE.	DATE	ASSIGNED SPEAKERS.
*Lagrange, So. Milford.....	Monday, Feb. 23.....	O. F. Lane. D. B. Johnson.
E. F. Seagly, So. Milford.....	Tuesday, Feb. 24.....	
*St. Joseph, No. Liberty.....	Wednesday, Feb. 25.....	
C. I. Reamer, No. Liberty.....	Thursday, Feb. 26.....	
*Pulaski, Medaryville.....	Friday, Feb. 27.....	C. J. Whistler. H. F. McMahan.
Aug. Reeser, Medaryville.....	Saturday, Feb. 28.....	
*Cass, Royal Center.....	Monday, Feb. 23.....	
D. T. Vernon, Royal Center.....	Tuesday, Feb. 24.....	
*White, Burnetts Creek.....	Wednesday, Feb. 25.....	W. A. Hart. E. H. Collins.
M. K. Reiff, Burnetts Creek.....	Thursday, Feb. 26.....	
Pulaski, Pulaski.....	Monday, Feb. 23.....	
C. L. Bader, Pulaski.....	Tuesday, Feb. 24.....	
*Whitley, Larwill.....	Wednesday, Feb. 25.....	W. A. Hart. W. B. Flick.
G. R. Knisely, Columbia City.....	Thursday, Feb. 26.....	
*Whitley, Churubusco.....	Friday, Feb. 27.....	
G. R. Knisely, Columbia City.....	Saturday, Feb. 28.....	

*Supplemental meetings.

The tables which follow show the number of sessions and the average attendance (1) at the Annual Institutes, and (2) at the Supplemental Institutes held during the past season.

For comparison the attendance at Annual Institutes for previous years is shown in Table 1.

I. ATTENDANCE AT ANNUAL INSTITUTES.

County.	Number Sessions Held.	Average Attendance.		
		1902-1903.	1901-1902.	1900-1901.
Adams	5	71	216	208
Allen	5	75	307	167
Bartholomew	5	146	177	508
Benton	5	74	140	266
Blackford	5	70	98	463
Boone	5	158	290	212
Brown	5	79	147	70
Carroll	5	322	294	185
Cass	4	193	190	122
Clark	4	172	78	38
Clay	5	94	82	184
Clinton	5	742	1,165	403
Crawford	5	83	74	89
Daviess	5	140	53	163
Dearborn	5	273	174	88
Decatur	5	370	437	168
Dekalb	5	209	279	407

<i>County.</i>	<i>Number Sessions Held.</i>	<i>Average Attendance.</i>		
		<i>1902-1903.</i>	<i>1901-1902.</i>	<i>1900-1901.</i>
Delaware	5	180	144	240
Dubois	5	146	176	204
Elkhart	4	467	985	754
Fayette	4	310	222	204
Floyd	5	98	58	94
Fountain	5	84	178	123
Franklin	5	152	268	326
Fulton	5	595	582	528
Gibson	5	275	260	189
Grant	5	210	222	400
Greene	5	71	252	192
Hamilton	5	215	83	162
Hancock	5	297	136	315
Harrison	5	169	172	305
Hendricks	5	112	177	205
Henry	5	530	1,318	795
Huntington	4	231	361	401
Howard	5	337	320	180
Jay	5	161	178	163
Jackson	5	141	254	136
Jasper	5	138	122	207
Jefferson	5	141	169	178
Jennings	4	36	76	119
Johnson	4	242	187	320
Knox	5	83	199	720
Kosciusko	5	423	275	521
Laporte	5	610	247	300
Lake	5	350	290	377
Lagrange	5	660	640	436
Lawrence	5	49	62	131
Madison	5	473	581	1,060
Marion	5	132	411	190
Marshall	5	388	235	753
Martin	5	51	66	47
Miami	5	127	143	108
Monroe	5	143	206	182
Montgomery	5	68	296	157
Morgan	5	314	295	252
Noble	5	141	104	155
Newton	5	79	120	83
Ohio	5	74	120	95
Orange	5	283	120	344
Owen	5	72	58	97

<i>County.</i>	<i>Number Sessions Held.</i>	<i>Average Attendance.</i>		
		<i>1902-1903.</i>	<i>1901-1902.</i>	<i>1900-1901.</i>
Parke	5	136	59	311
Perry	6	281	244	166
Pike	5	104	71	162
Porter	5	472	415	298
Posey	5	277	448	445
Pulaski	5	162	124	144
Putnam	5	285	362	370
Randolph	5	210	603	353
Ripley	5	154	137	134
Rush	5	455	540	381
Scott	5	54	107	165
Shelby	5	263	268	474
Spencer	5	299	195	244
Steuben	5	477	388	360
Sullivan	5	145	57	64
St. Joseph	5	950	1,140	1,105
Switzerland	5	156	243	168
Starke	5	91	72	132
Tippecanoe	4	160	188	215
Tipton	5	525	508	470
Union	5	366	449	261
Vanderburgh	5	288	196	151
Vermillion	4	97	108	170
Vigo	4	77	179	184
Wabash	4	95	88	213
Warren	5	166	271	135
Warrick	5	79	143	108
Washington	5	116	163	93
Wayne	5	299	462	217
Wells	5	457	480	640
White	5	136	178	133
Whitley	5	192	233	470

GENERAL AVERAGE.

1902-1903.....	229
1901-1902.....	269
1900-1901.....	279
1899-1900.....	269
1898-1899.....	250
1897-1898.....	272
1896-1897.....	232
1895-1896.....	272
1894-1895.....	118

II. ATTENDANCE AT SUPPLEMENTAL INSTITUTES.

<i>County and Place.</i>	<i>Number Sessions Held.</i>	<i>Average Attendance 1902-1903.</i>
Adams, Berne.....	5	143
Allen, Harlan.....	5	82
Allen, Ft. Wayne.....	4	54
Bartholomew, Hartsville.....	5	331
Benton, Otterbein.....	5	251
Blackford, Roll.....	5	98
Boone, Jamestown.....	5	233
Cass, Young America.....	4	179
Cass, Royal Center.....	4	49
Clark, Borden	5	101
Clark, Watson	5	63
Clay, Poland.....	5	87
Clinton, Kirklín.....	5	82
Dearborn, Dillsboro.....	5	185
Dearborn, New Alsace.....	5	49
Dearborn, Sparta.....	5	165
Dekalb, Butler.....	4	175
Dekalb, Corunna.....	3	318
Delaware, Oakville.....	5	183
Delaware, Shideler.....	5	118
Dubois, Hillham.....	1	35
Dubois, Holland.....	4	133
Fountain, Covington.....	5	89
Fountain, Kingman.....	4	176
Fulton, Akron.....	5	150
Gibson, Hazelton.....	5	235
Gibson, Oakland City.....	5	144
Grant, Van Buren.....	5	76
Hamilton, Sheridan.....	3	147
Harrison, Elizabeth.....	5	236
Harrison, Lanesville.....	4	28
Hendricks, Pittsboro.....	5	305
Henry, Lewisville.....	5	212
Howard, West Liberty.....	5	55
Huntington, Bippus.....	5	45
Huntington, Markle.....	5	162
Jackson, Medora.....	5	76
Jay, Red Key.....	5	30
Jefferson, Ryker's Ridge.....	5	212
Jennings, Benville.....	5	101

<i>County and Place.</i>	<i>Number Sessions Held.</i>	<i>Average Attendance 1902-1903.</i>
Jennings, Grayford.....	5	92
Johnson, Edinburgh.....	4	70
Knox, Frichton.....	5	130
Kosciusko, Milford.....	5	212
Kosciusko, Silver Lake.....	5	167
Lagrange, South Milford.....	5	165
Lake, Lowell.....	5	229
Laporte, Westville.....	5	150
Madison, Markleville.....	5	250
Marion, Castleton.....	5	63
Marshall, Bremen.....	5	258
Montgomery, Ladoga.....	5	157
Montgomery, Waveland.....	2	83
Montgomery, Wingate.....	4	71
Noble, Kendallville.....	4	128
Noble, La Otto.....	5	375
Noble, Ligonier.....	4	79
Ohio, Bear Branch.....	5	27
Parke, Rosedale.....	4	98
Perry, Celina.....	5	138
Porter, Hebron.....	5	128
Porter, McCool.....	4	72
Pulaski, Medaryville.....	5	146
Rush, Carthage.....	5	341
Spencer, Rockport.....	5	340
Steuben, Ashley.....	5	183
Steuben, Fremont.....	5	294
St. Joseph, North Liberty.....	5	366
St. Joseph, Osceola.....	5	190
Switzerland, Moorefield.....	5	201
Tippecanoe, Clarks Hill.....	5	80
Warren, Pine Village.....	5	219
Warrick, Newburg.....	5	280
Washington, Campbellsburg.....	2	58
Washington, Claysville.....	5	146
Washington, Chestnut Hill.....	3	57
Wayne, Boston.....	5	114
Wayne, Cambridge City.....	5	118
Wayne, Economy.....	5	194
Wells, Ossian.....	5	141
Wells, Poneto.....	5	145

<i>County and Place.</i>	<i>Number Sessions Held.</i>	<i>Average Attendance 1902-1903.</i>
White, Burnett's Creek.....	5	187
White, Wolcott.....	5	145
Whitley, Cherubusco.....	5	144
Whitley, Larwill.....	5	228
Whitley, Laud.....	5	133

General average for Supplemental Institutes..... 153

General average for the Annual and Supplemental Institutes.. 192

EXPENDITURES OF THE INSTITUTE FUND.

The following is a classified statement of disbursements of the Institute fund for that portion of the year ending June 30, 1903, as taken from the books of the Superintendent of Institutes. The unexpended balance shown below will be used to hold District Institutes, the annual conference of institute workers, and to defray other expenses of the work for the rest of the fiscal year ending October 31, 1903.

Bills of chairmen.....	\$2,012 39
Per diem of assigned speakers.....	3,132 07
Traveling expenses of speakers and Superintendent.....	1,950 00
Salary of Superintendent.....	750 00
Stenographic and other clerical work.....	356 49
Printing and stationery.....	84 89
Postage	71 60
Supplies	43 50
Telegrams, freight and express.....	17 96
Membership dues American Association of Farmers' Institute Workers	5 00
Unexpended balance June 30, 1903.....	1,576 10
Total.....	\$10,000 00

PAPERS OF LOCAL INSTITUTE WORKERS.

Through the courtesy of the State Board of Agriculture, the Superintendent of Institutes is permitted again to publish a number of the papers presented at the Farmers' Institutes by the local workers during the past season. These papers, which appear on the following pages of this report, were selected and sent to the Superintendent by the several County Chairmen. As a rule these papers are published as sent in, without abridgement or modification in any way.

The work of the year has been characterized by very earnest work on the part of the Institute speakers, and by increasingly efficient co-operation of many of the local officers. There is yet much room for improvement in many localities of the State. It is the hope and purpose of the chairmen to give closer supervision, where necessary, in order that the work may become thoroughly effective in every section of the State.

W. C. LATTA,

Superintendent of Farmers' Institutes.

Purdue University, Lafayette, Ind., June 30, 1903.

PAPERS READ AT FARMERS' INSTITUTES BY LOCAL SPEAKERS.

THE IMPORTANCE OF IMPROVED LIVE STOCK AND ITS FEEDING.

C. N. LIBEY, LIMA, IND.

[Read before Lagrange County Farmers' Institute.]

We are at the point of reclaiming the lost fertility of the soil.

It is quite generally conceded that marketing our crops in the form of grain and hay is in direct opposition to good farming principles, and is not remunerative to a satisfactory degree.

Grain and hay must be marketed in the form of a more finished product; that is, as beef, milk or butter-fat from the cow, as force and speed from the horse, and as wool and mutton from the sheep, etc. Hence, "improved live stock and its feeding" is the one important subject above all others. For upon live stock depends the fertility, and upon the fertility of the soil rests the success of all farming operations.

It scarcely seems necessary to spend the entire time allotted to me in attempting to press upon you the superiority of the pure-bred sire over the scrub. His superiority is quite generally conceded. But for fear that it may not be conceded, I will refer to the live stock market, which is a great leveler, where all animals meet on equal terms and nothing counts save quality. Note the difference in the prices received for the high grades, or top steers, and those received for others. Look where you will, you will see quotations like the following: Extra prime steers, \$6.00@6.50; fair to medium steers, \$3.75@4.40. The simple fact, that there isn't a carload of extra prime steers bred and fed in our county in a year should be enough to convince the ordinary man that an improvement is necessary, to say nothing of the fact that a difference of \$2.10 per hundred-

weight exists between the two steers. I submit to you if it isn't a fact that the fair to medium steers ate more, gained less, and cut a poorer quality of meat than the extra prime steers.

For the sake of comparison I will suppose that ten head of each of the above steers are fed, granting that the low grades, or scrubs, would at marketing time weigh the same as the high grades—say 1,400 pounds. Ten head would weight 14,000 pounds, and at \$4.40 would net \$616, against \$816 for the high grades, a difference of \$195, which in itself would be a good profit, and illustrates, in a very moderate degree the existing differences in beef cattle.

Again, it is not beyond the intelligence of the average man to know that fully 50 per cent of the dairy cows (so called) do not pay at the pail. I think statistics will bear me out in saying that the dairy cows of the State of Indiana are, as a whole, kept at a loss. This fact is ample proof, I take it, of the necessity of an improvement along dairy lines. Yet we have dairy herds in our own county that pay handsomely, and indicate what can be done where a desire is manifest. We find cows that are light milkers and low testers, cows that are high testers and light milkers, cows that are deep milkers and low testers. These two good qualities have, by persistent, careful breeding, been combined. Why, then, do we milk cows that are boarders?

But the cattle men are not alone. "I think if one would pass down the sidewalks of our county seat on a Saturday afternoon, he would see horses hitched to the sidewalks," as Senator Harris puts it—"horses of every possible combination of abnormality; horses with draft bodies and trotting legs; horses with light, waspy couplings, small heads, fine manes and tails, and the stout, strong, feather-fringed legs of the Scottish and English drafters." Will it be necessary for me to say that I think an improvement would be helpful?

As it is with horses and cattle, so it is with sheep and hogs. And the feathery tribes are not exempt. We find them mixed almost beyond recognition.

This is the situation we are called to face. Rather than go farther, I will leave this part of the subject and attempt to show some of the causes which I think have led up to the present degenerate condition of our live stock, and advocate a plan for its improvement.

A cause of inferior stock is indifferent breeding. As a result we find a heterogeneous collection of mongrels and misfits—"no horse or cow of uniform type, breed, grade or quality."

Luck? No. Luck does not figure in the improvement of anything that lies as close to nature as live stock. It is management, good breeding pure and simple, and not luck, indifferent, careless,—may I say ignorant?—breeding that will result in success.

The one great requisite to improvement in live stock is the "pure bred" sire which, having been bred for generations in one certain line,

has the power to transmit his character to his progeny and therein prove his superiority over his rival the "scrub."

It is not necessary that everyone should breed pure bred when four or five top crosses will give for all practical purposes as good results. Yet we should remember that every cross should be from a pure-bred sire. All improvement through him must come, and the sooner we accept the fact the sooner we will have taken a step in the right direction.

Good females are hard to buy. Therefore it becomes necessary to have the young females from the pure-bred sires and see that each succeeding cross is an improvement over the former.

Next in importance to the pure-bred sire in the improvement of live stock is a quality that does not exist in the animal to be improved, neither is it present in a satisfactory degree in the live stock owners of our county.

I humbly believe, could I develop this one quality to my satisfaction, I could, in a few years, more than double the valuation of our live stock. That one admirable quality is tenacity of purpose—stick-to-it-iveness.

Our breeding operations remind me of what Senator Harris said when speaking of the advent of pure-bred horse sires. He said: "Recognizing the fact that they were of better type for special purposes than the home stock, preached to by the press, advised by wide-awake institute lecturers and college professors, farmers commenced to 'breed up.' Every man started right. He picked his best females and mated them with a better sire. His intentions were good. But he grew tired of his work.

"The first progeny was often disappointing—not the ideal he had in mind. A few top crosses were made; then the owner, after a visit or two to the fairs, decided to try a new experiment and mated the females of the first crosses to a sire of a different breed.

"Commencing with a Percheron, he was not content to make five top crosses in order to obtain practically pure-bred Percherons. He fell in love with a Clydesdale, Shire, Belgian or with a trotting horse, a coacher, thoroughbred or even a jack, and this new cross gave no better satisfaction than the first."

This sounds ludicrous; but, nevertheless, it is an exact illustration of the breeding operations now in vogue to too great an extent in Lagrange County.

This trait is one to be gotten rid of, because it is one of the greatest drawbacks to improvement. It is not the result of ignorance. But in our haste to acquire riches we are prone to jump in and out of breeds according to the mutabilities of the market.

When sheep are high, many sell horses and cattle and buy sheep. When beef is high some dairymen are prone to use beef sires, and vice versa, thus ruining both the characters and acquiring neither a beef

animal nor a dairy cow; simply degenerating both, when had he stuck to one breed until its inevitable return to profitableness he would have received his well earned reward.

Co-operation of farmers and breeders is necessary to the improvement of live stock. If a pure bred sire is brought into your neighborhood and he is of your breed you owe it to your community, to your neighbor, to your sons, to yourself, to lend your encouragement and patronage.

No one can help improve the live stock of a community much unless he has a desire to improve his own. He should not let selfish greed actuate him to such an extent that he would rather let his own stock deteriorate than encourage or patronize a neighbor for fear he might save a few dollars. Nor can one help improve the live stock of a community much by keeping a grade sire and placing the fee so low that it will not sustain the animal on a better ration than frost and straw, and then spend his time trying to convince himself that he is a public benefactor.

You may think this a little severe, but you must know we are dealing with a very severe drawback to improvement and I prefer to meet it face to face.

A great improvement would result if we would breed in line. If all men who breed beef cattle would select one of the established breeds and breed it to the exclusion of all others; if dairymen and horsemen and all breeders would do likewise, and not jump in and out and mix their breeds, we would have distinct types and breeds. Let me quote again from Senator Harris, I think he strikes the key note.

In speaking of improvement in horses he says: "What a difference there might have been had breeders been possessed of stick-to-it-iveness. Had they gone on as they commenced, breeding year after year to the sire of the same breed, selecting always the best procurable sire of that breed, selling goldings but keeping all grade mares, building on and up, the result could have been none other than a great success. That success would have meant horses of one type, one blood, uniform, practically pure bred, the personification of the successive sires used. Had districts combined in the work they would have earned a name and fame for horse stock of a given type, and buyers would have gone there annually for supplies and been willing to pay an appreciative price."

Had we made use of our opportunities and stuck to what we once had, is it not a fact that Lagrange County could today have been headquarters for one or more of the established breeds of horses or cattle? And had we taken such advantage, is it not a fact that the valuation of our live stock might have been twice what it now is? But is it now too late to commence our improvement?

Along the line of feeding I simply wish to say, that good stock and good feeding are one, neither is perfect without the other. And that with the improvement of our live stock we should attempt to make ourselves improved feeders.

To summarize, the importance of improved live stock becomes apparent when we realize its present condition and compare it with that of other districts. We should encourage rather than discourage co-operation when possible. We should breed in line and pin our faith to the pure-bred sire, and make him the base of all improvements. So firm am I in this belief that I humbly think that if while our last Legislature was racking their brains framing a law to catch a few old men and boys for harboring or using fish spears they had passed a law making it unlawful to harbor or use a grade sire they would have passed a far more commendable act.

Next to the pure-bred sire in importance we should stick to one breed.

It is this trait, this stick-to-it-iveness, this bull dog tenacity that Senator Harris says in the Breeders' Gazette he would have us emulate and possess. It is this trait he would like to see nurtured and cultivated in every farm family. It is this that should dominate the work of the sire, that he may hand down to the son a heritage of living organisms trained by him in the way he should go. It is this that the son should learn to appreciate to the full, and determine to make his guiding star in the life-work before him. It is this, and this only, that can make the breeding of animals a success and entitle it to rank as one of the most noble and entrancingly interesting avocations of man.

SHEEP HUSBANDRY.

ROBERT MORRIS, SALEM, IND.

[Read before Borden Institute.]

Sacred history tells us that after the creation of the earth God made the beasts of the field, after his kind, and cattle after their kind, and everything that creepeth upon the earth after his kind, after which God said let us make man. And it was so. So that sheep, as they were made before man, must have been wandering upon the hills without a shepherd. The first successful occupation that we have an account of was sheep husbandry. Able was a keeper of sheep. But Cain was a tiller of the soil. It is true that Able's father was put into the garden of Eden to dress it and to keep it. But in that he proved a failure. He was discharged. And was driven out. And sent forth to till the ground from whence he was taken. A guard was placed at the east end of the garden for fear he might return to his first and far more desirable situation. And the Lord had respect unto Able and his offering. But unto Cain and his offering he had not respect. So his older brother made a signal failure in his chosen undertaking, and a mark was set upon him. So it is plain to see that the younger brother's was the first successful occupation.

Sheep husbandry is a reputable employment, none more so. The shepherd loves his sheep. The sheep know his voice and do follow him.

The good character and fidelity of the shepherd was exemplified in that young stripling, David, though a youthful shepherd, was valiant, and fought the Lord's battles; slew the giant Philistine, Goliath, and after more mature years became a man perfect in heart. While David was a keeper of sheep, doubtless by way of amusement, to pass the time of long summer days, he practiced handling the harp or using the sling, and became so proficient in both as to handle each with surprising accuracy. There is no account given as to the breed of sheep that Able handled. I suppose, however, that they were of the kind that Noah preserved a remnant of, and most likely they were of the broad tail and horned kind, as a long blast with a ram's horn was made in compassing the city of Jericho.

Now to come nearer home and up to this present date, sheep husbandry is shamefully neglected in southern Indiana. And can there be a better or more opportune time than now to start in the business? The prices of sheep in our market have advanced a little in the last year, and wool proportionally, and the tendency is still upward. Perhaps the unfortunate condition of the sheep industry in Australia may be one cause of giving life to the market in this country, after such a long slothful condition of the wool and mutton trade.

On account of the extreme dry season of 1901 in Australia it caused such a dearth of water and food that the stock of about one hundred million sheep has been reduced to less than forty million. It seems that farmers are not fully aware of the advantages of a flock of sheep on a place, the number to be in accordance with the size of the farm. There are many places in this portion of Indiana that would be benefited by having a flock of sheep grazing upon them, even though the owner realized no direct profit from either fleece or increase. Aside from either, they are such wonderful scavengers, such noxious weed-destroying animals, that to credit them with the very least benefit, they do rid the field of such an abundance of sore-eyed, and unprofitable growth. Not only that, but on hilly ground they will feed during the day on the lowest places, and invariably at night resort to higher ground, and if not disturbed will remain until the morning of another day, thereby enriching the poorest spots, taken from where it can better be spared, converting useless, worse-than-nothing, plants and filthy weeds into the very best available plant food. Professor Kennedy, of Iowa Experiment Station, says there are six hundred different kind of weeds, and that sheep will eat 550, horses eighty-two, and cattle fifty-six of them. There are weeds that sheep seem to relish better than grasses of any kind, and there are very few that grow in this country that if they have access to in time but what they will keep in check, if the territory is not too extensive for the size and range of flock. So not only in this respect is a flock of sheep of de-

cided advantage roaming over a place, but where they are well cared for the place looks better with sheep on it.

Besides all this there are two yearly profits, the wool clip and the early marketed lambs. By proper management the fleece should be clear of burs, and lambs averaging 60 pounds in weight, while prices are always good for early matured lambs.

In making a start in sheep husbandry of course there will be some preliminary expense, the first purchase, preparing shelter, etc., yet one need not branch out too heavily at the first start, as an increase with proper care sometimes is astonishingly satisfactory.

To whoever has any intention of embarking in the sheep raising industry, my advice would be, first be careful and select the breed that you think you would like best, and then hold to it, and improve it by careful selection each year of a better buck, as he is half the flock. With all the care that possibly can be taken at times there will be reverses, sometimes discouraging, unavoidable losses. What business is there that is altogether free from what some would say bad luck? It is said that a person born lucky has no need of sense. I believe if I had my choice, I would take sense. (Too late now.) Pluck is far more to be desired than depending upon luck. I have had sheep different times for many years. The flock of eighteen head of ewes that I have now, were started from fourteen Shropshires purchased about fifteen years ago. I have endeavored to improve them every year. Year before last, 1901, I sustained losses that were really discouraging, six from 60 to 80 pound lambs died from the effects of stomach worms, and a \$40 buck, with three ewes, that cost \$50, died from bloat, occasioned from eating rape. Now I don't say they were worth that much, I only say they cost me that. They were pedigreed. I have ewes in my flock better than one pedigreed sent me that cost \$30, that I would not think of pricing higher than \$10. So I have reason for disliking pedigreed sheep. It all depends upon the integrity of the man. Last year being exceedingly wet, after such a hard winter, resulted in great parasitic fatality. Perhaps it was noticeable by many persons present, the cow-fly pest. They were not near so numerous as they were the previous year. Even the house fly seemed to be diminished in numbers. In consequence of the absence of stomach worms I did not lose a sheep or lamb the past year. As the head of my flock of eighteen ewes is a fullblood thoroughbred Shropshire butting buck; not a Jersey, neither of the dairy strain, but a more solid firm type of stock. He is affectionate, and manifests his appreciation of good company in a marked degree. Makes up readily with a stranger, and he is by no means backward in introducing himself. He has been criticised as being a little too hasty in his advances upon short acquaintance. He takes no offense when one's back is turned toward him on account of his familiarity. These characteristic traits have no tendency in injuring his breeding qualities,

which is fully verified by this year's lambs. Sheep husbandry, not unlike other business, has its ups and downs.

Did you ever think that with a sufficient number of sheep, man need not suffer for want of food or raiment. Both completely combined in the one animal. Man does not live by bread alone. With a few fat lambs he would not have to. What other animals are adapted for use in like manner. The buffalo, the camel, the bear, the Angora goat or the goose might be mentioned as the nearest approach, none of which are to be compared with the sheep for tooth or textile.

It is a wonder, and I can not understand why Americans use so little mutton. It evidently is the healthiest of meats, so acknowledged by the best of doctors. Judging from some English people that I have seen, they have the appearance of the healthiest race of people on earth; and they are noted for mutton eaters.

I said if any one is thinking of going into the business of sheep husbandry be careful and select the breed you think will be the most profitable (for after all said, that is what every one is after), and keep that distinct breed clear of mixture. If not you will in time have a conglomeration of wool, hair, horns, hides, hoofs, and a yearly clip of a mixture of inferior wool and hair. And if asked what species or variety of sheep you have, you will be able to answer they are the combination kind, they are dual, hair and wool, sheep and wolf, a variety united in the one animal, making it able to stand much exposure. The Shropshire breed is not the longest, but is neatly built, round bodied, compact in form, stand well on their feet, have black faces and legs, yearly wool clip averaging from six to seven pounds, and prolific breeders. I had eighteen ewes one year that raised twenty-seven lambs, averaging a lamb and a half to the ewe. Dogs are not so numerous as they were, since a tax (township and city) is required of the owner. Consequently the danger of mangling and killing of sheep by them is not so great as formerly. Should a loss occur in that way, the State is responsible, and will adjust the damage.

For fifteen years I have kept a flock of sheep on our home place of sixty-six and a half acres. Unfortunately and unjustly every foot of it is incorporated within the city limits, and not a sheep or lamb has been killed by dogs. Only in bad weather are they enclosed in sheds either night or day. They are changed from one to another of three different lots, one four and two six acres. Only a few days in the year are they on other parts of the farm. Invariably they return to one of these lots at night. Dogs certainly have some ways of communicating ideas one with another, for they all seem to know that it is unhealthy roaming around on certain territory alone. (Suburbs of Salem.) Not long ago one ventured into a garden not far from where we live; he was reclining in the warm sunshine when first discovered. He never regained his feet. His remains were carefully laid away under an apple tree, and if not

exhumed by some grave-robber, at the instigation of some doctor that wished to renew his knowledge of anatomy, they are there yet. They tell me the tree is not injured to any appreciable extent. The bark evidently is different, healthier looking, smoother and tighter—got that from the dog. The fruit, however, has not the slightest caninish flavor.

Doubtless the fear of depredations by dogs among a flock of sheep has kept some from purchasing. That danger, however, is not so great now. When a few sheep in a flock have been killed or mangled, the whole flock is materially injured. And if thoroughbred the loss is no little, and the assessed damages should be accordingly.

There is more or less risk to encounter when undertaking any new business, and it is well enough often to go slow and look well as to discouragements, and make estimate, as near as possible, compared with supposed benefits to be derived. I have endeavored to present the chances for both profit and loss. Some of both evidently will be met by whoever undertakes the business of sheep husbandry.

This particular part of our State needs more sheep to anywhere near equal other parts of Indiana, or other States, in sheep raising. This rolling section is well adapted for and should be used in part for that interest by many more farmers. There ought to be an increase of flocks of sheep in this southern part of the State of at least ten-fold, and a corresponding number of decrease in dogs.

THE SILO IN FARM ECONOMY.

H. E. YOUNG, ASSOCIATE EDITOR FARMER'S GUIDE, HUNTINGTON, IND.

[Read before the Huntington County Farmers' Institute.]

The day has passed when the American farmer can make a profit out of his land in the same manner and by the same means once used by his forefathers. Times are constantly changing and all business is continually going through a process of evolution which must necessarily bring forth new and different methods of procedure. In the agricultural world we have seen this same metamorphic-like change. The value of land has increased many fold and with the advent of 50, 75 and 100-dollar-an-acre farms methods of farming had to be varied. Those same methods used in tilling the extensive and low-priced farms are no more in vogue. We can no longer afford to use one hundred acres where fifty will do as well. The great grain fields and pasture areas have been cut in two, and fenced off from others like themselves of less extent. Once the great farms of the West and Middle West were covered with growing grains, and wheat reigned as the all-important crop. The comparatively high price of this bread-making element made it possible for farmers to real-

ize a profit over and above the small amount of interest upon their land investment. Now, wheat is no longer of such profit; it has given place largely to the growing of corn and other grains by which the income of the farm is made larger and more substantial through the growing and feeding of all classes of live stock. It is now the live stock farmer who is making the greatest profit from his acres. He is adapting his small farm to the production of a greater amount of salable products, and to such products that are most in demand at good and reasonable prices. In other words he is beginning to practice a system of intensive rather than extensive farming. And this is exactly what the future farmer must do. He must so manage his land that it will give him a maximum profit instead of a minimum one, that it will bring forth crops that, by judicious use will net him a higher dividend over and above expenses. This means not only more crops but more and better use of those crops after their production. It is not simply important that we produce more per acre upon our farms, but equally so that we use to better advantage that that we already produce.

One of the greatest elements of intensive farm management today is economy. The more we intensify our farming the greater must be our economy, the more we must economize. In the past frugality has played a small part in agriculture, land has been too plenty, prices too high and the farmer too easily satisfied with a small income. Now we must turn to economy as a principal in deriving for ourselves a better and more consistent living. We must learn to practice economy in the use of land, in labor, in the production of crops, in the handling and use of feeds and in the final dispersion of our finished products. In fact, that element of practical economy must enter into every process, every institution and every method now used upon the farm. The advent of new and better farm machinery, better equipped and arranged buildings, more complete and more effective feeding methods, higher developed and more responsive breeds of live stock, have all aided materially in effecting this needed change. Science has also given much and in citing special examples of the many economical arrangements and appliances now in use upon the farm, perhaps, the silo may be placed as the most important. Especially is this true in the region of the corn belt. Wherever live stock is to form a part of agricultural industry there will the silo prove an economical benefit. It is the object of this paper to call attention and to discuss some of the ways in which the silo contributes to farm economy.

In the first place, let us note briefly the kind and quality of feed that the silo makes it possible for the farmer to use. It gives to his stock a succulent food, and such a ration is nature's food for all animals. No truly dry ration can take the place of a green one. In the northern regions, where stock must be housed more or less during a certain portion of the year, farmers have ever been striving to produce some food that would, in a way at least, take the place of pasture grass. In England,

and Canada to a great extent, the farmers have solved this problem by the use of the root crop, but in the United States that crop has proven far too expensive to gain accepted favor upon the general run of farms. Farmers in this country will not take kindly to the growing and use of roots. Some have tried but they have soon turned from it and either sought other courses or went back to the use of dry feed. The advent of the silo has changed this condition of affairs and has offered a food that is in every way equal to roots in feeding value and one that is much cheaper to grow and produce. The dairy farmer was the first to realize and acknowledge this new feed, and it was not long before it became generally adopted as a valuable and economical adjunct to the dairy farm. Because of this enthusiasm on the part of the dairymen, or because the beef grower and general farmer were slower to take hold of it, silage first came to be known as only of use in the milking herd. Finally a few of the more progressive and intelligent farmers began to ask why, if silage was so good and of so much advantage in dairy farming, it was not of equal use upon all farms where stock was kept? If the dairy cow that is required to furnish a large amount of milk for human consumption could do so well on it, why not the thoroughbred cow that is expected to furnish the best support possible for her calf, and why not the feeding steer that must furnish himself with an abundance of flesh to be acceptable upon the market he is intended for? These questions have now been answered, and silage, as a part of a feeding ration, is no longer an experiment. On the contrary, it has long since passed through its experimental stage. When compared with a dry roughage ration it is far superior. Besides making a ration that is more pleasing to the animal—more palatable—its results in the feeding pen are most agreeable. Various public and privately conducted experiments show there is a difference of from 5 to 20 per cent. in favor of the green feed. This surely is a gain to the feeder and a saving that can not well be overlooked by any farmer who is to make the most from his investment. Such a per cent. speaks well for the economy of any feed and judging from that standpoint, assuming the cost of production to be the same, we must consider the silo a favorable institution for the American farm. One that supplies a food that stands as the most economical, other things being equal, that can be furnished either to the dairy cow or beef animal, and in fact to all classes of farm stock, because it gives an amount of succulents and additional feeding value that can not be obtained elsewhere.

Acknowledging that silage is pre-eminent in forming the farm feeding ration, especially for winter, let us look to the element of production. The cost of producing the same should be studied as well as its mere feeding properties, for therein lies its complete value and economy as a food. For convenience we will compare this expense with that incurred by the other crops that silage may be used in place of. Pasture, roots, hay, corn fodder and straw compose the list. In the first place take pas-

ture. This, of course, can only be produced and used during the summer months, and can only be deemed a substitute at that time. However, the comparison will be no less true. It takes two acres of good land, with the best of grass to pasture a cow or steer six months, and even then it needs some other forage crop to supplement it a part of the time during drought. It also needs some grain ration to make either animal do the best, and some other feed must be supplied during the other six months of the year. An acre of good corn will produce twelve tons of silage, which gives four animals thirty pounds each day for six months, or two animals thirty pounds each day for twelve months. In addition they need a little dry fodder and some grain by way of variety. Thus you see that there will be less additional feed to be supplied, that two animals are fed instead of one and that only one-half of the two acres has been used—a saving of land and at the same time a doubling of the number of cattle kept. The use of the silo will double the number of animals and double the amount of butter or beef that can be produced from a given area of land when pasture in summer and dry feed in winter is depended upon. Therefore the silo will in this way double the income of the farmer. We have known of instances where even better results were obtained, especially where silage was used the year round or in connection with a system of soiling. In any case the silo is a much more economical source of feed than pasture land.

Now, we do not wish to be understood as advocating a sudden change from the pasture to the silo or that all pasture should be done away with, but we do hold that silage is cheaper than pasture grass upon a farm that is worth \$50 or more per acre.

The productive cost of roots is also much greater than that of silage. At the Pennsylvania Station Armsby found that an acre of corn could be placed in the silo for \$21, while to grow and store an acre of roots cost \$56. Thorne, of the Ohio Station, after a careful test of the two crops, said it cost more to grow and harvest 3,000 pounds of dry matter in a root crop than to put up 6,000 pounds in the form of corn silage. And these tests are not far out of the way, as is shown by numerous other similar trials. This relatively high cost of production and the great amount of care demanded by the root crop has given it small amount of favor with the farmer.

Again, in the case of dry roughage, economy in production stands upon the side of the silo. Some will say upon first thought that hay can be produced more economically and more cheaply than silage. This may be so when we simply look at the cost of growing the two crops, but that is by no means all the expense connected with the two. Surely the use of the land and the cost of storage must be considered in the comparison. In figuring the amount of feed of any kind that can be produced from a given area of land it is customary to use dry matter as a basis, as that alone will make up the future feed. Two tons per acre is an extra good crop of hay and the average throughout the country would be nearer a

ton and a half, or 3,000 pounds. Analysis shows that hay contains about 86 per cent. dry matter, which makes, with above average yield, a total of a ton and a quarter, or 2,580 pounds per acre. Now, as stated before, an average crop of green fodder will weigh twelve tons per acre, or 24,000 pounds, which contains 25 per cent. dry matter, making a yield of three tons, or 5,800 pounds of dry matter. This gives the silage more than twice the amount of dry matter per acre, which increase surely offsets the difference in cost of growing.

The greater amount of land that must be devoted to the production of hay is also a disadvantage. It is generally considered for feeding that silage is worth about one-half as much as hay, weight for weight. Then 100 tons of silage will equal fifty tons of hay. Nine acres of ground will produce 100 tons of green fodder, but, at the least calculation, it will require twenty-five acres of land to grow fifty tons of cured grass. On land that is worth \$50 per acre we can not afford to use so much for hay when we can produce the same amount of feed, of a better quality, in the shape of corn silage on less than one-half the number of acres.

The matter of storing of the two crops might also be noticed and found to be greatly in favor of the silage. It takes not far from three times the amount of space to store the same amount of feed as hay than it does as silage.

In comparison with corn fodder the cost of production is not so widely different. The expense up until the time of harvest is the same, whether the corn is to be placed in the silo or to be husked and fed in the usual manner. The two methods of harvesting also can not be said to be so very different. The cost of siloing is offset by the expense of shocking, husking, cribbing, grinding the corn and cutting the stalks. In fact even here in point of handling a slight difference on the side of siloing is noted. A comparison of silage with straw is hardly necessary, as their uses do not exactly overlap. It is seldom, if ever, that straw is used other than in a maintenance ration, or simply to give a variety in roughage feed.

We have seen how the silo may be a source of economy in comparison with other feeds, we will now note its benefits in regard to the corn crop alone. Indian corn has long been the greatest and most valuable crop of this section, and its production and use have contributed largely to the income of the farm. This sort of thing will continue and increase as land value advances, but in doing so the value of that crop and its production must also increase that it may keep pace with the higher price of land. Fifty dollar land must either produce more corn than did the twenty-five dollar land, or else the value of the corn raised, upon the higher priced acre, must become greater. Both conditions have, to a certain extent, been realized. We are now, by the use of new varieties, careful selection and better approved methods of growing, producing a larger amount of corn per acre, and by the use of the silo we are enabled to make better use of the increased crop, thereby greatly enhancing its

value. The system of siloing has given us the use of the whole crop. There is, by this method, practically no waste. The whole of the plant is made into feed—the ears, the husks, the leaves and the stalks all go to make a better ration than can be obtained by any other treatment. There is no part of the plant left in the field to be acted upon by the weather, thereby making it of less value in the feed lot. The silo in this way completes a saving of nearly one-half of the entire value of the corn crop. Forty per cent. of the feeding value of corn is found in the husks, leaves and stalks, and upon many farms we find that these parts of the plant are largely, if not entirely, wasted. The grain alone is saved and the rest left standing in the field only to be broken down and plowed under the following spring. Can this kind of slovenly and careless management even be termed a distant relative of economy? A loss of 40 per cent. of a crop can never lead to very extensive profits. But some will say: We have no use for the fodder and that is the best and easiest way to get rid of it. It acts as a fertilizer to the soil. Then we answer: If you have no use for the crop then you should certainly have a better use for the land and the labor placed upon it. It is indeed a poor policy to raise corn fodder simply for fertilizer. There are any number of cheaper and better forms of plant food. The day is coming when the wasting of even 10 or 15 per cent. of the value of a farm crop will turn profit into loss, success into failure.

The method of field curing fodder and its use by shredding or cutting is a step in the right direction, but that system is also attended with great loss, the total per cent. only being reduced to about one-half that sustained in the above practice. With the best of care, corn, shocked, husked and fed from the field will lose 20 per cent. or more of its real value, and in case of the fodder alone it will reach from 30 to 60 per cent. By the use of the silo the losses of nutrients need not exceed 8 to 10 per cent., and may even be reduced to a minimum of 5 per cent. Where the silo is made a storehouse for the corn crop the land is left in the best possible condition, and in good season, for some fall crop; the harvest is finished during good weather and before the coming of frost; the crop takes up much less room in storage and is in shape to feed at one-fourth the cost of whole fodder. These may be minor points of advantage, but they stand in favor of the silo.

In conclusion, I would say that every farm needs a silo, and that the small landowner is benefited by its use as well as the more extensive farmer. As a matter of economy the intensified farm demands it. It is more stock that you want, not more land, and the silo will help you to get it. After six years of personal experience with the use of a silo upon a Michigan farm we have yet to note a single year in which that institution has not many times saved its original cost. It has enabled us to increase the earnings of the farm from 50 to 100 per cent. and we could not afford to do without it.

THE ENGLISH SPARROW.

W. S. RATLIFF, RICHMOND, IND.

[Read before Wayne County Horticultural Society.]

Perhaps no importation of a bird or animal into this country by public or private enterprise has caused so much grave concern of later years in economic science, as the House or English sparrow (*Passer domesticus*), and no doubt a larger sum of money will be necessary to materially reduce its numbers than for any other imported pest. Its multiplication affects the growing of seeds and grains, vegetables, fruits, flowers, forestry and ornamental shrubs and vines.

In the consideration of this pest, it must be admitted that it has one redeeming quality, and that is, it is a feathered creature—a bird, and the following notes are given impartially from individual observation, from investigations of scientific men, from notes of the Biological Surveys and through the Division of Economic Ornithology, under the Department of Agriculture, to show the extent of its colonization, its uselessness, its destructiveness and its obnoxiousness.

The earliest importations from England of the sparrow that were liberated and thrived, were in 1852, by the Brooklyn Institute of New York. These were followed by others up to 1881, in the States of Maine, Rhode Island, Massachusetts, New York, Connecticut, Texas, Ohio, Pennsylvania, Utah, Wisconsin and Iowa in the order named. Perhaps the largest single importation was 1,000 birds in '69, to Salt Lake City. Several hundred were sent from one part of the United States to another, until almost the whole country from one ocean to the other and from the Hudson Bay to the Gulf was soon overrun with the dreaded scourge.

In Indiana, Indianapolis received its first share from New York City, in 1871-2, of several hundred birds; Evansville next, followed by Lafayette and other cities in rapid succession. In our own town of Richmond, the first birds were seen on our streets in 1869, and were welcomed by our citizens as a good omen, not having been imported or introduced, but migrating perhaps from Cincinnati. Great interest was centered in these birds and fruit men and farmers believed the subject of insect destroyers was solved. The "reputation" of this bird was accepted without question, except by a few who are slow to accept any new accessions, and they were not only permitted to remain unmolested, but were soon protected by legislation.

The sparrow's diffusion aside from man's efforts was secured in other ways. Empty and grain-filled box cars transported them hundred of miles, where new colonies were soon started, where they soon adapted

themselves to their new surroundings. In this way some were carried to St. John, New Brunswick, in 1883, and to Montreal, in the following year.

Generally the sparrows would migrate to the larger cities; thence to the smaller ones as they became overcrowded until they would repair to the village towns and country, so that at present it is difficult to visit a single farm in this as in many other States, where the sparrow is not found in more or less numbers. Being a grain-eating bird, it is noticed that they follow the lines of railways, where they can secure scattered grain that is lost in transportation.

These birds apparently prefer city life to that of the country, which is due to the accessibility to their food supply which is found on our streets from the droppings of our grain-fed horses. Young birds generally leave the city when large enough to take care of themselves, to partake of the farmers' and gardeners' grains and seeds until cold weather drives them to the farmers' barns or back to the city.

The extent of the country occupied by them and the rate of increase in numbers is marvelous, and the public has awakened too late, it is feared, to materially retard their advance.

For the first five years after their importation, but 500 square miles were inhabited by them; in ten years more, one-half million square miles were colonized, until at the close of the century, virtually the entire country was overrun by these pugnacious pests. For centuries he has been found throughout the most of Europe, Australia, New Zealand, Persia, Central Asia, Ceylon and India, and perhaps elsewhere.

It is claimed that but six broods are raised each year, with an average of perhaps four in this locality; nesting beginning about the first of April. The eggs, from four to seven in number, are of a dull whitish color, often spotted or streaked with brown, requiring about thirty days from the time the eggs are laid until the young birds leave the nest. It is known that in many cases, eggs are found in the nests about all the time, the warmth of the unfledged young hatches them, thus keeping up a continuous brood during the nesting season.

It being a domestic and gregarious bird, he possesses more than ordinary cunning and intelligence, and takes advantage of the protection afforded by the proximity to man from the enemies that tend so largely to keep our native birds in check. So it seems that the sparrow has been in most every way aided to securing a permanent foothold on this and other continents.

No bird, apparently, can so adapt himself to the surroundings of any clime or zone as the sparrow. From the torrid heat of the tropics to the blizzards of North America, he seems to be at home.

Among the natural enemies of the sparrow, the cats, hawks, jays and owls are the most important, and tend quite largely in keeping them in check. The cats, however, kill many adult and young birds. The owls,

especially the Screech species, are destroying immense numbers annually, and should be protected by man in every way possible. During the early evenings of summer they are seen busily scanning the premises in search of their prey. Not uncommonly, a sparrow hawk is seen to dart into a covey of sparrows feeding on the ground, or in some berry patch or fruit tree and fly away with his victim.

The Northern Shrike has been proven to be a very useful bird in destroying them in parks and public gardens. So also, the crow-black bird and blue jay have killed and devoured a share of these pests.

In some places the scarcity of nesting places in our larger cities has aided much in keeping them in check, but they have learned that they can take to trees and elsewhere, so that but little is lost.

At first upon their colonization in America, man's hostile influence to them was practically nothing. The isolated opponents were aggressive and did much to induce the biologists and others to systematically study habits, multiplication and economic value. The tide of public opinion gradually changed. The protective laws that had been enacted since his importation were repealed. Later, laws were enacted legalizing his destruction and now 99 per cent. of our population can readily see the necessity of his extermination. But can it be done?

It is found that our foreign neighbors who were homesick for their fatherland, in yearning for the chirp and presence of the sparrow, have helped to heap a curse upon us, instead of a blessing, by advocating and assisting in its importation, and it is hoped that some means will be devised to materially reduce their numbers.

There have been many methods employed to check their increase by man, such as trapping, shooting, poisoning and destroying nests, but the extreme cunning of these pests prevent much progress in this direction, and some danger is attended shooting and poisoning to animals as well as individuals.

In Europe as well as America these birds have been used as an article of diet, but it is believed that sparrow pot-pie will not become very popular, especially in this locality.

The destructiveness of the sparrow to buds, blossoms, fruits, vegetables and grains is enormous, and from the following notes, the necessity of immediate and systematic effort is necessary to abate the ravages of these pests.

Besides destroying the above, they seriously disfigure ornamental vines, forest, shade and evergreen trees by their gregarious habits and filth, and many a beautiful tree or vine is thus ruined.

The destruction of buds and blossoms in winter and spring can not be computed. Many observers, among which were those at the Department of Agriculture grounds at Washington City, found the sparrows stripping the flower buds from the ornamental bushes and the buds from the shade trees throughout the city. As the peach buds began to unfold, with a

powerful glass, the observer could see them scanning the limbs and branches, removing almost all of the fruit blossoms. Where the entire buds were not removed, the central part was bitten out and the coming crop of peaches destroyed. The pear and apple buds suffer enormously and many a failure in our fruit crops is attributed to drouths, cold weather, etc., when in reality this pugnacious bird is largely responsible for it.

Many letters from all over the United States indicate that the buds of all varieties of fruits, of tree or vine, have been injured or destroyed every year by these pests. And among all fruits that are grown, the greatest concern at present is the grape. In California grape culture is of great importance, and the rapidity at which these birds are increasing, this immense industry of the Golden Gate State is being jeopardized, and if the sparrow continues to increase in the future at the rate he has in the past, the industry will be destroyed.

Letters from grape growers from twenty-six States positively report the sparrow's depredations in their vineyards. The little buds and minute and growing bunches are greedily devoured, and many vines are entirely stripped before the berry of the grape attains much size. After the bunches are matured, the grapes are punctured and often carried away, which is a serious loss to those shippers who desire compact bunches, as soon the berry rots and the rest follow. There is a diversion of opinion regarding the cause of these ravages. Some think he is after insects, the seeds of the grape or its juices, but as he is a seed-eating bird, he relishes fruit with his diet.

In Australia grape growing has been almost abandoned on this account, and must continue so until his numbers are materially reduced.

The method of sacking the bunches will need be more extensively used by individual growers than ever, especially with the more tender and attractive varieties.

Ripe blackberries, strawberries, currants, gooseberries and raspberries are greedily eaten in our gardens and the losses are not realized unless care is taken to note the sparrow's visits. These fruits are not only eaten by the adult birds, but carried to their young for food, and often our failures to get a single plate of some of these fruits is due to their constant presence in our fruit bearing bushes and vines.

Often one-third of the crop of ripe cherries on individual trees are taken by birds, the sparrow taking his share, which, with loss of fruit buds in early spring by him would equal near a quarter of the crop, the Governor Wood cherries suffering most.

But few fruit men are seen who have not found the sparrow pecking their apples and pears, and so seriously have some of them been eaten, that the fruit must be gathered before fully mature. This is the case with Red Astrakan, Yellow June and Wealthy apples and Clapp's Favorite, Miami, Flemish Beauty and Early Catherine pears.

The larger fruits are often hollowed out so as to resemble a shell, the seed and pulp being entirely eaten, and little is left of the pear or apple still hanging to the tree.

Prof. F. M. Webster, of the Purdue Experiment Station, writes: "The English sparrow is destroying my apples. I have several trees in my garden, and as soon as the fruit gets mellow they peck holes in it, and it either drops to the ground or decays on the trees. I can hardly get a single apple fit to eat."

Peaches and plums, although not so much relished as some other fruits, are attacked and large quantities rendered worthless from being punctured by the bills of these birds. The plums, especially, on being injured in the least, begin rotting on the trees. The plums growing often compactly on the branches, easily communicate the rot to the uninjured fruit and the loss is often heavy if not almost entire.

For several years we endeavored to grow plums successfully, but failed on account of the rotting on the trees, which doubtless was superinduced by this bird.

The palate of this bird is quite peculiar, as figs and even tomatoes are not safe in his sight, and many failures in fruit crops of other kinds will in time be better understood and perhaps abated, when the habits of this fellow are better known, and it is clearly seen that if he is allowed to continue to increase in numbers unmolested as has been done, the growing of fruits will be attended with uncertainties and failures.

There be few gardeners but have had trouble in vegetable gardening, especially with protecting the young shoots as they emerge from the soil in the spring. Most all of the earlier ones are eaten or mutilated, which requires replanting and additional care to secure "a stand." In fact, the plants are subject to his attacks during all stages of growth.

This is the case with peas, beans, lettuce, squashes, sweet corn, radishes, beets, turnips and some other vegetables. The heart shoots of young plants are eaten out and the plants rendered useless, apparently regardless of the variety of vegetable or fruit.

Field and sweet corn both suffer enormously, the shucks on the maturing ears being stripped back and the succulent young grains eaten and destroyed. The injured ears of garden corn are rendered unsalable by their distorted and blackened appearance. Many times our blackbirds and crows are given the blame for the damaged ears of field corn found at cribbing time, which is unjust.

No end to the quantities of seeds consumed by this seed-eating bird in the garden and field. Often the pods of the pea and the radish are torn and the seed either eaten or wasted. The lettuce and turnip beds receive their accustomed visits and suffer also. The growing of sun-flowers for seed has been abandoned near our cities on his account, for just as soon as the seeds are ripened, they are removed.

Persons desiring to secure a lawn by seeding it, have to cover all seed well, as this sparrow industriously searches the spot for uncovered seed. Doubtless thousands of sparrows annually fill their gullets with the clover and timothy seed sown on the fields in early spring by the farmers.

As soon as millet is ready to cut it has to be removed, as he has a special affinity for the clusters of seed-filled heads of the millet stalk while in the fields.

Sorghum growing for seed has been abandoned near our larger cities, as great flocks of hundreds daily visit the cane patches until all the seed is eaten or shattered from the stalks. The sorghum fodder was rendered worthless as a cattle feed by their presence.

The subject of weed-seed eating has been best answered by the Department of Agriculture experts, showing that in nearly all cases "the seed being mainly from the roadsides and waste places, so that its consumption did neither good nor harm, except in so far as it served to divert the attention of the sparrow and prevent it satisfying itself with other and perhaps more valuable food."

Wheat and rye are most greedily eaten. From the time growing wheat is in the dough until it is threshed, his presence is almost constant in the field. The standing straws are bent over and broken by his weight. When in shock, the cap sheaves are often entirely stripped of grain, and when the unthreshed wheat is put in ricks or stored in barns, all exposed sheaves are "shelled out."

Their taste for threshed oats has caused farmers to almost entirely abandon the practice of broadcasting oats at seeding time, as a considerable quantity of the exposed grains are picked up and devoured by him. He is also very destructive to oats in the sheaf and in the mow.

For years our bobolink has been disastrous to the rice plantations of the South, and now his associate in his depredations is this English sparrow, which is hoped will not be so serious as the former, but grave fears are being too surely realized.

Formerly the blue bird, wren, oriole, cat bird and many others of our native birds nested in our door-yards and groves. Now it is difficult to find many nests of any birds near our residences, and when they do nest, they are not likely to return the following year. Out of 1,860 letters received from individuals throughout our country, a majority referred to attacks to the blue bird, martin, wrens and swallows. One-third of all the complaints referred to the more peaceable birds that nest principally in trees. The remainder referred to more than eighty species that are attacked or disturbed in nesting and feeding.

It has been shown that the sparrow is decidedly injurious to fruits, seeds and grains, drives away our native birds and is a serious nuisance in other ways, but if he should be an insect-eating fellow, some excuse might be offered for his depredations.

It is known that he has sometimes eaten span-worms and caterpillars. but such insects are greedily eaten by other birds he drives away. Many insects that he could eat, he never touches, and his very presence lessens the probability of greatest insect destruction by birds. It is not understood that the idea should be conveyed that the adult sparrow eats no other insects but those mentioned above, but in no appreciable quantity. They pick up such insects as happen in their way, and then too, when the supply of other foods are scarce at that time.

It is also seen that much of the remnants of beetles and indigestible sections of insects are quite probably taken into the crops more to assist in masticating fruits and grains, than as an article of diet, and much of the contents of stomachs should be so classified.

We all know that the larvae and adult insects furnish a large diet for the young of birds, but, although singular as it may seem, cases on record show that young sparrows in nests are fed exclusively on partly digested grain, bread and cooked meat for considerable periods at a time, which may be due perhaps to ease of access or overcrowded conditions in large cities. But as this bird has largely changed his food habits since being imported into this country, we might expect him in time to rear his young principally on food aside from insects.

C. V. Riley, our former National Entomologist, examined over 500 stomachs of the sparrow and noted the insects therein. He compared the total amount from all as not equal to the insects found in one stomach of a single cuckoo bird killed at about the same time.

It was also shown that more than half of the insects found in his crops were beneficial and a large percentage of the remainder were innoxious or harmless species. So that if he is an insect eater, he surely does not consume enough to justify his residence among us, as he is with us every day and does not migrate south or north as other birds do.

The sparrow did consume his share with other birds of large quantities of adult seventeen-year locusts (cicadae), but the State Entomologist did not think it advisable to keep a pest seventeen years to eat locusts two or three weeks in one year.

FARM BUILDINGS.

A. D. MOHLER, OF HUNTINGTON.

[Read before Huntington County Farmers' Institute.]

In passing through the country an observant person will notice a vast difference between the barns and outbuildings on the farms and the homes of the owners. As a rule the former are designed for the comfort of the farm animals and the convenience of handling the crops, etc., while the

latter are characterized by more of an absence of intelligent design and convenience than for the possession of these qualities. The prevalent idea seems to be that it is a useless expenditure to utilize the artistic, or even at times the convenient, in the construction and arrangement of the human habitations on the farm. It seems as if it were thought useless to give much attention to the home. Such should not be the case. A portion of the dwellers in the country spend all their time and labor in the dwelling while the remainder spend almost one-half of their time there. Should not, therefore, more attention be given in planning and designing farm homes than is now the case?

Time and again has there been a discussion of the question of why the young people desire to leave the farm and dwell in the city. Can not an answer, in part, be found that they desire the comforts and conveniences found in many modern town homes, and which are rarely, if ever, found in the country home?

Were I to give any advice on this subject, I would say that in the farm dwelling should be found all the so-called modern comforts and conveniences that are claimed to be necessities in the town or city home. I see no reason why the male workers on the farm should provide themselves with improved machinery and appliances, and yet the women workers be content to do their work with but few if any of the conveniences enjoyed by their more fortunate sisters in the town. It should not be the case. The farm house should have all the modern appliances. In fact, I am of the opinion that it is more necessary there than otherwise.

What constitutes a model farm house? In the first place I would have it designed in conformity to two ideas: its use and its surroundings. Regarding its use, many things would enter into consideration. Convenience, economy, health and comfort of its inmates are qualities that should not be lost sight of. Too often the idea seems to be that all that is necessary is to provide a certain number of rooms and of a certain size, leaving out of consideration the arrangement. The result is that another element is omitted, that of economy. Economy in building and convenience go hand in hand, and no house is complete when wanting these qualities. Regarding the health and comfort of the inmates there are a few essentials that are too often omitted. The subjects of heating and ventilation, of bath-rooms, of laundries, of kitchen sinks and water works, are almost entirely eliminated from the design when a farm house is built. These points, though common enough in the town dwelling are a source of wonder and surprise when found in the country. This should not be. I was about to say it should be the opposite. Every one building a home should provide the best means of heating and ventilation. It is economy so to do; and there is no better method of securing this result than by the use of a good furnace properly and intelligently installed. I say properly and intelligently installed, for this is a necessary condition. Proper heating can not be done without proper ventilation. Pure air and plenty of it is the

cheapest blessing one can enjoy, and to deny one's self so necessary an element of good health is the sheerest folly, if not criminal, yet thousands who build at much expense to protect their health and that of their families, as they allege and sometimes suppose, by neglecting the simplest principles of ventilation, invite disease and infirmity from the very means they take to avoid them. Air-tight stoves in the various rooms, and no means provided by which to carry off the bad air invite disease, the doctor and death. With a furnace, and notice, properly and intelligently installed, every room can be heated and every room can be ventilated. Health and comfort depend upon proper heating and ventilation.

Again, every dwelling should have a bath-room with all the necessary appliances. I am not advocating a luxury in this, but another element of health and comfort. There is no reason whatever for the omission of so necessary an element. The objection of expense is sometimes urged, but in a house properly planned the expense is not great, and an intelligent designer can so plan that it will be economy. Even were the expense a large item, which it is not necessarily, the great ideas of health and comfort will more than compensate the owner for the outlay. The modern bath-room is a necessity, not a luxury.

Laundries, kitchen sinks and water-works should not be omitted. The women workers upon whom fall a heavy burden in farm work should have their labor made as light as possible. It is arduous enough at the best and the lifting of heavy wash-tubs, and carrying in and out heavy pails of water and the pumping of the same should be eliminated entirely from their duties. No one can give any good or sufficient reason why these appliances should not be found in the farm house. The town cottage has them, and why not the country home? The expense is but a small item, and the health and comfort greatly increased. I do not desire to incite anyone to rebellion, but the farmer's wife should make a demand for these things, and strenuously so when her liege lord finds it so necessary to have the latest style of self-binder, or a riding plow or sulky hay-rake.

But someone says: "Our fathers and mothers did not have these things and they got along, and therefore we don't need them." Of course they did not. Neither did they have railroads, telegraphs, telephones, electric railways, self-binders, gravel roads and rural free delivery. Do you want to go back to those times? If not, then why not put in your house the modern conveniences, even to gas lighting? It will pay. The boys and girls will not desire to leave the farm. The home will be pleasanter. It will then truly compass what a good dwelling should do—provide for the health and comfort and happiness of its inmates.

I have given in the above some thoughts regarding the designing of a country house with regard to its use. The other idea in design, that of conformity to its surroundings is of no small importance. There is no need of making a dwelling a blot on the landscape in order to conform to

a supposed economy. A house can be made beautiful without being extravagant or expensive. Every house should be designed in harmony with its surroundings. There is as certainly a style about a building as about a horse or a coat, and harmony applies to architecture as much as it does to music. No one possessed of the smallest knowledge denies this, yet many imagine that it applies only to cathedrals, palaces or mansions, at the very least. But it is not so limited. Proportion and harmony are as indispensable in a small dwelling as in a mammoth structure. More than that, small defects and variations from what is correct are more noticeable in the former than in the latter. Pass along a street faced with modest dwellings and some marked contrasts are seen. One exterior will be seen that is pleasing to the eye because taste and style were exercised in making the plans after which it was built, while another jars the beholder like a false note in music. It is well constructed, of good material and costs as much, possibly more than the former, but something is wanting to render it pleasing, or else something is put in that destroys the effect of other good features. It is out of harmony with its surroundings, and instead of adding to their beauty as every well designed dwelling should, it detracts therefrom. A well-designed, beautiful building, with all its parts in proportion, costs no more than one wanting those qualities. Besides it has an educational value. Beautiful and well proportioned habitations produce a profound effect upon character and destiny. The taste of the American people at large is rapidly developing in the line of beautiful buildings, and this spirit is manifesting itself in private residences, in the humble cottage as well as in the more stately mansion or public building.

From the views above presented it will be seen readily that a building fulfilling the conditions described must be designed by one who has made a study of such conditions and is competent to produce them. In other words, no one contemplating the building of a home, be it ever so humble, can afford to dispense with the services of a competent and practical architect. Many of the failures of life are chargeable, not to general inability, but to inexperience, positive ignorance, sometimes, of the task one attempts to perform. One person can not properly master many trades and callings and "Jacks of all trades" are nearly always "masters of none," and are seldom successful in any way. Many prospective builders look upon the fees or percentage of an architect as a foolish and useless expenditure of money. If an architect approaches them on the subject, they say contemptuously, "I don't want any pictures. I have my plans all in my head, and I expect to employ men by the day, and I can tell them just what I want, and arrange matters as we go along." Hence in order to effect a supposed saving of money he decides to leave everything to a foreman or contractor, or be himself the "boss." This prospective builder would doubtless employ a doctor in a case of severe illness, or a dentist for false teeth, or a lawyer to avoid legal difficulties, and yet he feels com-

petent to practice a profession calling for quite as high an order of ability and training as medicine, dentistry or law. In fact the services of a competent and practical architect oftentimes prevents his client from the necessity of calling upon the doctor or lawyer. The person who is his own architect usually finds out his mistake, but not until he has suffered serious inconvenience. The tuition in the school of experience comes very high, but men are often determined to have it. Many excellent reasons founded on common sense and practical experience can be urged for employing a competent architect in building operations of whatever kind.

By employing an architect, completeness and consistency in plan are assured. The owner, or builder, unless himself a practical architect, can rarely make plans that will "work out" smoothly and perfectly. As a little girl of my acquaintance once said, he can not "inch them." They may be right enough in the main, but defects and miscalculations, often decidedly serious in their nature, almost invariably develop, and result in much extra expense in making alterations, or in an inconvenient, incomplete and unsightly structure; frequently in a combination of all these drawbacks. When you see a man with a special knowledge of architecture engaged in making so-called plans, and later see him attempting to superintend the work of construction, you are pretty safe in the conclusion that it is his first building venture. Against the time he has paid for his experiment in money, annoyance, loss of time and profanity, he will, probably, have acquired experience enough to employ, in his second undertaking, a competent and reliable architect. I say probably, for there are some who can not learn, just as there are persons who can be gulled time and again on patent rights. Architecture teaches the art of building, and is one of the most useful, as well as ancient, of all the arts. It demands much more time and attention than it usually receives. It requires careful and exhaustive study. A competent architect will carefully and intelligently specify materials and construction, thus protecting you in your contracts. In our day all forms of business are so subdivided as to render it impossible for one man to have more than a passing acquaintance with any of them. Houses are no longer constructed simply of brick or wood, or a combination of the two, but scores of new materials, and especially devices, are now employed in construction that were unknown a generation ago. Substitution now cuts a decided figure and is likely to embarrass one who lacks wide experience. The owner who acts the part of "every man his own architect," usually learns this, if not before his building is completed, as soon as necessary repairs, incident to poor material, are to be made. While some may, as has been said, "build better than they know," the rule is the other way, and lack of accurately figured, carefully drawn working plans, frequently result in serious, sometimes grotesque and laughable mistakes and blunders, which not only makes the builder ridiculous, but presents him with heavy bills incident

to correcting serious mistakes. In erecting a building, accurate details of construction are of the first—and last—importance.

One of the most amazing and dangerous results of amateur architecture is in the two necessary, important, almost vital, matters of plumbing and sanitation. Defects in these regards are of a very serious character, since they interfere with the convenience and comfort of the family, in the case of a dwelling, and are a decided menace to health, resulting often in heavy bills for medical attendance, and often in death and mourning. One of the most useful inventions of man, modern plumbing and sanitation, are a delusion and a snare unless properly and accurately constructed, and to see that this is done is the province of the architect.

Heating and ventilation, two most important and absolutely necessary features of modern construction, positively demand the care and skill of an architect to render them effective and free from drawbacks and objections. In none of the details of construction have greater advances been made in recent years than in these two branches. If rightly worked and properly applied they insure comfort and health; but where the work is defective they are a menace to health and a danger to be avoided.

Many other suggestions might be made regarding the employment of an architect. Knowledge of material and workmanship is absolutely necessary. If you have an architect he will see that your contracts are properly drawn. He is not a lawyer, but in the line of his profession he has studied those details of the law of contracts that enables him properly to protect the interests of his client with regard to materials used in construction, practical application and workmanship.

It almost always happens that one engaged in erecting a building, particularly where it is intended for a dwelling, has distinct, sometimes very valuable ideas that he wishes carried into effect; frequently excellent suggestions come from the wife, who is far more vitally interested than himself. These ideas, if properly worked out and made to harmonize with other portions of the construction and the many details, give an air of originality to the house, and cause the owners to feel that it is, in a certain sense, and within certain limits, a creation of their own. Here an architect is at his best. If suggestions are faulty, he can correct them; if impracticable, he can demonstrate the fact and avoid mistakes. Often he receives suggestions of a decidedly practical and valuable nature and, uniting them with ideas of his own, produces something more original, perhaps more valuable even, than he would have himself devised. When this is done the practical success of what was originally a crude, though none the less valuable, suggestion is due to the appreciation and skill of the patient and practical architect.

From the foregoing considerations we may conclude; first, that our farm residences should be provided with all the modern improvements and appliances that are found in the town dwelling, and that these improvements can be placed there effectively and inexpensively; and, second,

that to secure the best results it is the part of wisdom from many stand-points—among which considerations of actual economy cut a decided figure—for a builder to impart his inspirations to a competent and trustworthy architect, and permit him to do the rest.

I am making a plea for a happy, comfortable home, and permit me to conclude these discursive remarks with a short selection of poetry which, I think, expresses thoughts and sentiments that should actuate every one here present. The home referred to in the poem, however, is one that has grown out of careful thought and an intelligent appreciation of the principles of architecture as applied to human habitations:

BLESSED ARE THEY WHO HAVE HOMES.

I want to be home when the night comes down—
When the night comes down and the sun is hid—
And the pale, cold moon lights the glimmering town,
And is heard the shrill cricket and katydid,
Ah, me! "There's no place like home."

I want to be home when the night comes down,
When the storm-king raves and the billows roar,
And the signboards creek in the rickety town,
And the mad waves dash strong ships on shore,
Ah, me! what a snug place is home.

With my books, my papers, and my glowing hearth,
With my wife and children around me there;
With health and love and innocent mirth,
With a heart content and free from care,
Ah, me! what a heaven is home.

What need I care for the storm-king's wrath?
What to me is the rain or the lightning's glare?
Though the hurricane sweeps over the doomed ship's path,
And men lie bleeding and mangled and bare,
Ah, me! what a heaven is home.

Oh! my heart does go out to the homeless band—
To the homeless and wretched o'er all the earth—
To the wanderers by sea and the wanderers by land,
And I wish them God-speed from my humble heart,
Ah, me! would that all had a home.

WHY I STAID ON THE FARM.

CHAS. OTTO SANDON, BRIGHT, IND.

[Read before Dearborn County Farmers' Institute.]

There is quite a tendency among the rural population to leave the farm in search of pleasure, more society, better educational advantages, and what seems to be greater financial opportunities.

But with the telephones, free rural mail delivery and good roads, the people of the country are brought in closer contact with each other, and have easier access to town, so that the isolation is becoming a thing of the past. In fact it seems the delight of city people to have rural homes.

The educational advantages are continually improving. With our excellent school system, the concentrated school, the great efficiency required of the teacher, the high school within the reach of every country boy and girl; the institutes, granges and other organizations and such splendid agricultural literature; the traveling library, and lecture courses, composed of men with the best minds that our country produces, afford wonderful opportunities for development.

Shut off from the vices that arise from idleness and people crowded into too densely populated districts and surrounded by the beauties of nature, the American farmer stands peer to any people in the richness of thought and purity of heart.

The rating of any country depends largely upon the husbandmen. We can well judge of the civilization of a community by its farms. History proves that the nation that has fostered agriculture has prospered, while the country that has neglected it has decayed.

Alexander Hyde, a successful farmer in Massachusetts, said: "While we concede that the profits of farming are slow and sure, rather than rapid and uncertain, we still maintain that no business pays better in the long run for the capital and skill invested. Farmers rarely fail, while ninety per cent. of those who enter upon the mercantile career become bankrupt. It is an anomaly for a farmer to ask his creditors to take fifty cents on the dollar. We never hear of farmer princes, and we can not point you to millionaires among the husbandmen, but we can point you to thousands and tens of thousands among the cultivators of the soil who are as independent as any prince, and who live surrounded with the comforts, if not the luxuries of life, all brought from the bountiful earth."

A king might engage in agriculture without loss of dignity. We love to think of Washington, the farmer, as much as of Washington, the statesman or general. Adams, Jefferson, Jackson, Van Buren, Clay and Webster were all as dignified on their broad acres as they were at Washington.

and prided themselves on their attainments. It is said, "He who makes two blades of grass grow where one grew before is mightier than a king."

It must be pleasing to the manufacturer to see the wool and cotton woven into beautiful fabrics, or to the painter to watch his ideal develop at each stroke of the brush. How much more pleasant it must be to the farmer to know that the world is fed from his hands, and to see all around him the effects of co-working with nature. It has been wisely said that "kings may be dethroned and others are ready to spring into their places; monarchies may crumble to pieces and other forms of government arise in their stead; dynasties may be subverted, and society moves along almost undisturbed, but let the plow stop for a single season, and manufactures would be paralyzed, merchandising would be suspended, commerce would be at a standstill, and demoralization, stagnation, death and destruction would be as widespread as the world."

ROADS.

HUGH PATE, FRENCH, IND.

[Read before Ohio County Farmers' Institute.]

One of the most important subjects confronting the American farmer, and in fact every American citizen, is summed up in the words, "country roads." When our forefathers settled this country they scarcely thought of roads, and why should they? It is true their nearest neighbors were miles away, but when they called on each other, they went on foot or on horseback, and could dodge around trees, jump gullies, ruts, etc., and never think of blaming the road supervisor or county commissioners. Then they had nothing to haul to market except a little corn to a grist mill, and that was taken on horseback. But now what a change! Almost every farmer travels many miles each week in his buggy, and farmers don't like to be jolted much these days. Besides, crops of all kinds must be hauled to market, the farmers' sons and hired men must go to see their girls, and to parties, candy pullings, etc., and are always in such a hurry that smooth roads are very desirable.

The "American Wheelmen," a society organized of, and for the benefit of bicycle riders, have a map of the roads of the United States, which are most desirable for riding, and it mentions the best roads without regard to distance. In going from Rising Sun to Madison, Ind., the map requires the rider to cross the river twice, and then he saves time and strength in making the trip, although he travels many miles more. If it will pay a wheelman to travel miles out of his way, in order to ride on good roads, thereby saving himself and wheel, as well as time, why will it not pay us to have good roads, in order to save time, patience, vehicles and horseflesh?

We are all agreed that we need good roads; but it takes money to build and keep them in repair. My plan for getting the money would be to require a license on every vehicle used, the amount to be fixed by the width of the tire on wagons, and then a heavier license for buggies and bicycles. I think this no more than just, because many people travel the roads day after day who never help to build or keep them in repair. But even after the money is raised we still have a serious problem. I think a superintendent should be appointed for each township by the County Commissioners, instead of electing the Supervisors by popular vote; because men who are utterly incompetent are often elected, the saloon bum having just as much to say about electing them as the man who is most interested in the roads.

Allow me to give one or two illustrations. A few years ago a saloon bum living out in the country a mile and a half announced himself as a candidate for Road Supervisor. The good men of the community, without regard to party, voted against him; but he was elected just the same. He paid no tax, never traveled the roads, except on foot, was of no benefit whatever socially to his neighbors, but the President of the United States never felt larger than he did when he was elected. It is needless to add that the money for that district was practically squandered in one place. A road ran around the side of a steep hill; instead of putting a drain on the upper side of the road, he put one on the lower side—it would carry just as much water, and was easier made. It was said that some of the best farmers in his district lost their religion at the time, and never regained it until removing to Rising Sun a year or so later.

In another district the Supervisor was working the road with a crew of men. Squirrels were ripe, and one morning he came on the road with his gun on his shoulder. It was at first supposed that he intended to shoot the first man who stopped to get a drink; but that was a mistake. He told them that he was going hunting, and would probably be back again in the afternoon, but told them to not work too hard, as he was sure it would be a hot day. It is unnecessary to say that not a man got too hot, or that the road was very little improved that day.

In building roads, four things must be considered, grade, roadbed, culverts and metal. The grade should be the best that it is possible to get, even if it costs much more, and the work of metaling must be delayed, because roads are supposed to be made where they will remain for ages to come, and the grade is not likely to ever be any better when the metal is once put on.

On at least one of the roads of this county preparations are now being made to metal about one mile of road that is very hilly, just up one hill and down another. The roadbed has been made, and the drains along the sides are all right, but no amount of metal can ever make it a good road. To my mind it would be better to build large culverts in the low places, then grade the hills down before putting on any metal even if it takes

four or five years to complete the road. A dirt road with a good grade and roadbed is much better than a hilly road with metal.

The roadbed is next in importance, but to a certain extent this fact is generally overlooked. To insure a good road, the roadbed should be at least two feet higher in the center than the bottom of the drains. This guarantees good drainage, and means a great deal in the durability of any road.

The third item, "culverts," is very important, and they should be built of stone if convenient, and of such size as to be able to take the water quickly away after the heaviest rains.

And now, after so long a time, we find our road ready for the metal. In some sections where gravel is abundant it is best to use that, as it makes a splendid road, if it is screened, but it will not wear with good stone, or even make as good a road. When stone is used it should be crushed if possible, but if not, should be broken very fine by hand, and covered to the depth of about three inches with dirt or gravel. If this kind of a road is finished up in a workmanlike manner it will be good enough for bicycles or anything else. The new pikes in this county are serviceable and cost lots of money, but are so rough that a stranger passing over them would think he was in the wrong county. By covering these roads now with about two inches of dirt taken from the bottom of the drains they would soon become smooth, as the stone and dirt would unite and form a kind of cement. Then the people and horses who continually travel over them this winter would look and feel two years younger next spring than if the roads are left in their present condition.

Let us think a little about other roads. Take for a sample the Rising Sun and Laughery turnpike. In the first place, the roadbed was made level and the metal put on level. On the upper end large flat rocks were placed on the bottom, and coarse broken stone on top, while the lower end was made of sand and gravel. Many of the grades were left very steep, and the Island Branch, at times a dangerous stream, was left unbridged. What has been the result? The road has never all been good at one time, and seldom any of it very good. The water ran in the road where there was any grade at all, and to obviate this great ridges of stone or gravel were placed diagonally across the road on the steep grades, so that in pulling up the loaded teams had a hard tussle right in the worst places, and in going down the load was pushed hard on the team, making the driver hold his breath for fear the team would run away and he would get his neck broken. Ruts were continually coming in the road, and were filled with coarse broken stone or very poor gravel, so that some part has always been either rough or muddy.

The Laughery pike is in many respects very similar to the one we have just mentioned, and to pay toll on such a road shows that Ohio County is behind the times.

Several miles of road in this county are too narrow, and neither grade or roadbed has been made, and the ditches and culverts are entirely too small to carry the water.

Now while we favor taxing vehicles to raise the money, and having a Township Superintendent to use it, it is not likely that this plan will be adopted soon, and possibly never, so we must battle with the situation just as we have it, not as we would like to have it.

GOOD ROADS.

JAMES R. GUILD, OF MEDARYVILLE, IND.

[Read before Pulaski County Farmers' Institute.]

Gentlemen—It gives me great pleasure to introduce a question for consideration of this convention of farmers and those interested in the farming interests of this part of the great State of Indiana, and we are all interested, regardless of vocation or calling (as every honest dollar comes from the earth, as every dollar is a material something and must come from somewhere, and it must come from the products of the earth, the soil, mines, etc.). There is no question today of such vast importance, or in which the people universally are interested so much as good roads. At the national convention held in Chicago, where more than thirty States were represented, the chairman, Mr. John B. Walker, of New York, said in his opening speech, that this is by far the biggest question or problem before the country, and a question that needs immediate and serious attention, and showed by figures that the people of the United States lost annually \$900,000,000 because of the bad condition of the roads throughout the country. At this convention there was a text of resolutions introduced that I beg the indulgence of this convention to permit me to read, which to my mind are along the practical lines. They are as follows:

Whereas, The annual loss to the nation through bad roads, amounting to hundreds of millions, constitutes today the most important economic question before the American people, and

Whereas, It is inevitable that the rural free postal delivery will soon be universal in this country, and these deliveries will necessitate the best of public highways; therefore, be it

Resolved, That the Senate and House of Representatives be petitioned by this convention for an appropriation of \$20,000,000 for highway construction, to be assigned to the several States and Territories which shall appropriate amounts equal to their assignments. This in order that each State and Territory shall have examples of the best roadway constructed under the supervision of government engineers.

Resolved, That this convention commend to the country at large the example of Massachusetts, Connecticut, New York and New Jersey in

their rapid progress toward scientifically constructed highways, in appropriating large sums upon conditions that counties and towns shall contribute like amounts—one-third by State aid, one-third by the counties, and one-third by the localities benefited.

These resolutions indicate the thought and spirit of the American people today, as, wherever we go, we hear this question discussed, and the American people have the peculiar characteristic of "doing something" whenever convinced that it should and must be done.

Webster defines a highway—a public road. A way open to all passengers, so-called either because it is a great or public road, or because the earth was raised to form a dry path. Highways open a communication from one city or town to another.

A public highway is the property of the people, all the people, rich, poor, high or low, regardless of vocation, calling or nativity. There is no other institution known to man that is so universal belonging to all.

In our part of the country we have two kinds of highways—the common dirt or nature's kind, and gravel or stone highways. The common dirt roads are maintained by a tax on the real and personal property of a corporation by the proper officers and by the demand upon every able-bodied male citizen of the age between twenty-one and fifty years from two to four days' manual labor to be performed on the highways. The expenditures of these materials are in the hands of the Township Trustees and the Road Supervisors, and the chief object aimed at is drainage and bridges.

The gravel or stone roads are by far the more important and demanding one's attention at the present time. These roads are built under two laws. The two-mile limit law and the general tax law. After being completed they become, as it were, the property of the county and are maintained out of the county funds. The two-mile limit law, which is probably better than no law, as the few have to build the roads for the many, and as stated above, that the highways are for all the people, it seems to me that all the people should build them. It has been argued that this law is just as it is based on the theory that the ditch law is based. This I regard as a mistake, as a ditch benefits immediately only those whose lands drain into it, and a highway is as much the property of the traveler from a distant land who may have occasion to travel upon the same as the man who may reside adjacent to the same.

The general tax law I regard as the practical law, as it is built by all the people and the provisions are so liberal and in the reach of any community and so plain that all may fully understand, and as the people of White Post Township have the contemplation of the construction of twelve miles of stone or gravel roads in hand, and these roads, when built, will benefit all our sister townships adjacent to us, I beg the indulgence of this convention to hear the law read covering this proposition:

(Here the law was read.)

Inasmuch as we are living in the best age the world ever saw, a day of progress in all the various enterprises that make a happy and prosperous people, the best government on which the sun ever shone, a day when a man who would dare to oppose or mar the rights of a citizen would be so condemned by the expression of public sentiment that he would no longer be called a good citizen; a day of education, when around the fireside of an evening, when the day's duties are done, we can read the doings and happenings of the entire world on the day they occurred; a day when we can communicate by the telephone with our neighbor as satisfactorily as if he was at our side in the parlor; let us give this good roads question our favorable consideration, and why not be unanimous in favor of the construction of the twelve miles of road now under consideration? We need these roads. Our laws are such that we have to pay our taxes to support other gravel and stone roads of our county, and there are already a great many miles of such roads now built and many more being built, and the only way we can get our money back to our own township is to have roads of our own to be thus maintained. We are as ready now as we will ever be. The material is as available as it will ever be. Many of our people need the opportunities to earn an honest dollar as much as they ever have, due to the corn failures we have had the last season. We want rural routes established as quickly as possible, and these we can not have without good roads; and our farmers should have the same opportunities as the business man to inform himself and be posted, up-to-date, and this is impossible without the rural route system.

The payments of the tax are on easy terms and when these twelve miles of roads are made they are then off our hands and all our resources to make good roads are then expended on the other roads of the township. Let us have that progressive spirit and say by our words and votes that our people are as good as any people and must have the best, and under the law that these roads are proposed to be built the business men who own but little real estate will equally share with the farmers in the payment of the same. It is "up to the farmers" of White Post Township whether they will have the business men with an aggregate of \$230,000 taxable property help carry their load. We can have this, and I feel quite sure, we will bless the day when we made the undertaking.

To our friends from Gillam, Salem, Jefferson and Cass Townships: We come to your doors with these roads—say a good word—take them up where we leave them. We can go no farther. Extend them through your townships and by the united efforts of all we can soon have good roads, connecting all our towns and villages. Let us not stop until this is done.

NATURE STUDY IN THE PUBLIC SCHOOLS.

BERTHA STOUT, DILLSBORO, IND.

[Read before the Dillsboro Supplemental Institute.]

Within the past few years there has arisen a great enthusiasm in the public schools in the study of nature. Love for and study of nature has always existed and always been approved of, but the study has been rambling and perhaps not so fruitful as we could wish. Now we have a definite work outlined. Even the little children are taught to study plant and animal life, to make collections of leaves, study their forms, colors, etc., to study the seeds of the different plants—see how they are distributed by winds, animals and currents of water, and taught to see the preparations for the different seasons.

At first the work is very simple and is taught mostly by observation, but as the pupil advances in years it becomes more complex and takes on the form of study.

In the physiology he is taught in so far as possible to study human life as it really is. In geography he learns about winds and rainfall, different kinds of soil, and see what kind of conditions are necessary for the best growth of the principal plant. He not only studies plant but animal life as well, sees the adaptation of the different animals to their condition in life; how they are fitted by nature to secure the food they have to eat, and how each one is provided with means by which it may defend itself. He is taught to observe animals for himself, and then to tell what he has seen.

There is surely a revival of the love of nature abroad in the world today. The book stores show it, teeming as they do with books on ferns, mushrooms, birds, stars, etc. School journals show it, giving as they do splendid articles on nature study, devoting one department, at least, to nature study pure and simple, each month bringing forth something appropriate to be studied at that particular season of the year, songs on nature, gems of thought concerning it, and many, many more interesting things that I may not take time to mention.

Although the school curriculum is such that as yet nature study has not been put on a sound pedagogic basis, still the child is able to learn much of it as he studies the revised text-books on other subjects, for they give it a very prominent place.

And yet we need more, not only the child but the adult as well. What a splendid thing it is to be able to read nature, to see God revealed in His works. A love for nature should be instilled into the child from the very beginning and he will afterward live very near to nature's heart.

Childhood and youth are the consummate flowers of nature, and unity with nature is the glory of childhood, and unity with nature and childhood is the glory of fatherhood and motherhood.

"To him who in the love of nature
Holds communion with her visible forms,
She speaks a various language."

What grander fullness can we bring into the child's life than this—deep-rooted love for and knowledge of nature? How much more will he be able to get out of this life through his nature-loving, nature-seeing power.

He will be so imbued with love for the beautiful that all things evil will be crowded out.

Although the public schools are doing a great work along this line, it is to be hoped that in the years to come they will be able to do more and more, for the highest and best education tends toward the development of the soul.

WHY ARE OUR DISTRICT SCHOOLS TAUGHT BY INEXPERIENCED TEACHERS?

MISS HATTIE E. MILLER, AURORA, IND.

[Read before the Dearborn County Institute at Sparta.]

I must state that some of the district schools are taught by the best of teachers, but as a general thing many of these schools suffer from inefficient, inexperienced teachers, therefore we are led to consider the question, "Why are Our District Schools Taught by Inexperienced Teachers?"

This is an all-important question, and I should think of great moment to the patrons of these schools. Is it not an appalling fact that too many of our patrons are disinterested parties concerning the one who may have charge of the schools so their children are from under their control for six or eight hours a day. Is this not one of the minor reasons why the district schools are taught by inexperienced teachers? It is a true saying, "that which is not worth asking for is not worth having." Ask for experienced teachers. Demand them.

With all due deference to our County Superintendent and local trustees, I fear that too frequent inferior condition of the rural schools may be traced to the mistaken idea, "any one is able to teach a country school."

This is certainly an unintentional error, for there are great possibilities in a country teacher's field of labor. She has a miniature common-

wealth and unequal opportunities under her jurisdiction. The country children of our Nation constitute its most valuable element; and these children, who from their environments have vigorous bodies, pure morals, and active, practical minds, are the ones who should receive the benefit of the very best tested educational methods and the strongest teachers employed to teach them.

It is too true that many young men and young ladies are making teaching a stepping-stone to what they consider higher ideals, consequently, they have not fitted themselves for teachers further than securing a certificate and a position in some country school, thinking of course that it would make little difference what methods were used so they managed to keep school for a few months. Close supervision would often eradicate cases like these.

Whether it is true of any section of this State I do not know, but there are localities where inexperienced teachers are selected because they will teach for a smaller salary than the experienced ones, the trustees never once thinking that the advancement of the pupils and the upbuilding of the schools in their locality depend upon the efficiency of the teachers selected to teach them.

It may be possible for a poorly equipped teacher to make a primary teacher, but they are not fit for the country schools. Let them get positions in the graded schools, but the rural schools should have men and women that are strongly constituted, with highly cultivated minds, and that are full of enthusiasm and overflowing with "the milk of human kindness." A true teacher can see beneath the rough exterior of the "barefoot boy with cheek of tan" if not a statesman, something far nobler, grander. They can see a true man, ready to defend the right, brave and generous, loving his country and reverencing God's name. Then we should demand true teachers to rightly develop the minds of these children.

I think, as a usual thing, schools anywhere are as good as the community demands or as poor as it will tolerate. There may be one or two who insist upon having the best teachers. This is not enough; there must be this sentiment throughout the entire community, for the demands of a few are not as effective as that of many.

As I stated before, I think close supervision would aid very greatly in securing the best teachers for the rural schools. A close supervisor should have a thorough understanding of every phase of school work. He should be able to detect at once on entering a schoolroom whether there is good or bad management. I think the most advantageous work of a Supervisor is his skill in selecting the best teachers. He should, therefore, be directly or indirectly consulted by the trustees about the selection of teachers for the rural schools. As a people, simply wanting what is due, you insist on very close supervision.

It is hinted here and there that politics and relationship sometimes gives inexperienced teachers a position. If such is the case, is it not a sad state of affairs that the wisdom of our school boards and trustees should be overcome by such petty things, and give to the country schools inexperienced teachers; schools where the masses of our people are educated; therefore these are the schools where we should have the very best thinkers and instructors.

Sometimes the unwise multiplication of districts has kept the amount of money available for each district at so low a level that it makes it difficult to obtain the most efficient teachers. The low wages paid in some of these schools prevent employment of the professionally trained teachers. Even the brightest and ablest of these poorly trained teachers will be seeking a better education and better positions. This, therefore, makes too much truth in a statement made by a school officer after he had made an investigation of the schools in his State. He said: "Country teachers are in most cases young, immature, half-trained, ineffective and lacking in professional ideas and ambitions. They are of two general classes—the callow apprentice class and the old stagers who have been too inefficient to get employment elsewhere."

We know the occupation of a farmer boy necessitates a varied exercise of both mind and body, which is far superior to that of the city youth, whose range is limited to school, street and store or factory. The country environment gives a far more extensive chance for interesting study, therefore the greater the shame that the rural schools should have teachers that are not fully equipped for the noble work.

Some one has said: "If the farmer wishes to keep these boys and girls in the country he must, as far as possible, equalize the advantages of country and town so as to maintain an intelligent, prosperous, progressive and contented yeomanry; he must give immediate and effective attention to the needs of the rural schools." Could you not have better schools if you are very earnest in your efforts to improve them?

A teacher is the life of her school, therefore any effort to improve our schools resolves itself into this question: How to secure able, intelligent, progressive, devoted teachers. Every school district ought to invest teaching with such dignity and honor as will attract the best men and women to serve them. In order to secure this there must first be a cordial recognition of the wisdom and the justice of providing education at public expense, so that the public school teacher may hold a respected and honored place in the community. There should be local control in the selection of the teachers, and in the immediate administration of the schools.

Our country schools!

Long may they live to tell their country's story,
Here lies her wealth, her strength, her might,
Her rests her future glory.

BEAUTY OF THE SCHOOLROOM.

ZILLA WALTERS, GATCHEL, IND.

[Read at the Perry County Farmers' Institute.]

This is a subject which is very seldom considered correctly. An important physical condition easy of control is a pleasant schoolroom and attractive surroundings. The connections between physical environments and human conduct is very intimate. Other things being equal, the more attractive one's surroundings the higher will be his aspirations, and the easier his attainments.

When a child is of the age to attend school he will astonish us by the admirable precision of his sight and the ease and deftness of his vision. It seems as if he looks at nothing, and yet he has seen everything.

The mature man, and even the young man, preoccupied with thought or with inner emotions often looks only with distraction upon things without; but the child, free from after thoughts, eager and curious in the freshness and power of his nascent faculties, lets nothing escape him of all that is presented by the shifting scenes of reality; we might say that his whole soul is in his eyes.

A clever observed of children has called attention to this in a humorous vien. The child is all eyes. He has an incomparable power of vision; compared with him we are blind. Take your son with you into a workshop, or a palace, and on coming out interrogate him and you will be amazed at all he has seen. At a single glance he has made an inventory of the furniture, the walls, the objects useful and ornamental. A professional could not have done this so quickly. All children are born appraisers.

We might be tempted to think that the representative imagination manifestly useful to the artist and painter, who need to form vivid representations of objects, renders no service to the child and plays no part in its earliest education, but a little reflection suffices to prove the contrary.

A vivid representation of the letters of the alphabet will be of great service in teaching to read and write quickly and well.

Further on, in the tracing of maps and drawing, children will be endowed with respect to the imagination and accustomed to conceive with clearness the material form of objects, and will have no difficulty in surpassing their comrades.

It is not meant that physical environments determine conduct or character; for history is full of examples of high achievement without a favoring environment and also of sad failures with the most helpful surroundings; but while human life has its causal principle within the individual its activity is greatly influenced by external things. It is doubtless within

the truth to assert that the more favorable one's environments, the easier will be his success in right living, and this is especially true in childhood.

All thoughtful parents and teachers recognize the importance of right influence in the training of the young, but few comparatively attach sufficient importance to attractive and helpful physical conditions.

The beneficent influence of a beautiful schoolroom has been influenced by many a teacher.

There are quite a number of the listeners now who can recall backwoods schools when the approach of summer permitted them to transform the rude hovel in which school was kept into a bower of beauty. How pleasant was the task of cutting the green branches from the trees near at hand and filling up the old wide-mouthed fireplace and covering the rafters with living green and then flecking all with boughs of the June-berry, laden with white blossoms. As beauty came into the humble school how mischief went out; even the rude bouquet on the teacher's table was an invitation to beautiful conduct.

How easy were the lessons and how happily all responded to the teacher's wishes.

The removal of a school to a new building has transformed many a school and many a teacher has thus been made happy. On the contrary, a dirty, dingy and dilapidated school house is a constant temptation, not only to disorder but to low aims.

A State Superintendent once visited a beautiful village to give an address. The people lived in pleasant homes, bright with paint and surrounded with well-kept grounds, ornamented with shrubbery and flowers. He expected to find a schoolroom in harmony with the thrift and taste of the people; but, to his surprise, the public school occupied a dilapidated wooden structure in an open lot without shrub or tree for ornament or shade. On reaching the front porch he found the doors and casements cut and otherwise disfigured with obscenity, and on entering he found the rooms equally disgraceful. The floors were stained with ink, and dirty; the curtains in tatters, the outline maps torn and dirty, and the desks staring with obscene words and figures. He called the attention of the school board, who were with him, to the desks and entered an earnest protest against their permitting innocent children to occupy such seats.

He was met with the remark, "It's no use to put nice furniture in a schoolroom in this town; we have the worst set of boys in the country."

The Superintendent suggested that the obscene school house might be somewhat responsible for the depravity of the boys, and he earnestly urged the place to be purified—if necessary by fire.

In a short time afterwards the same Superintendent visited another village to give an address on the occasion of the graduation of a class from the high school. The building, a plain brick structure, occupied an entire square near the center of the town; the lot was surrounded by double rows of shade trees and the grounds in front were neatly laid

out with winding walks from gates to doorway and tastefully ornamented with shrubbery and flowers, all as well kept as the grounds of a private residence.

On entering the building he found everything in keeping with the beautiful exterior. The floors were clean, the stove polished, the curtains and maps in place and in condition, pictures on the walls, flowers in the windows, desks nearly as good as when new, fifteen years before, and the halls from the first to the third floor apparently untouched by pencil or knife. On the third floor was a large and well used library and a fine collection of minerals and other natural history specimens, all the results of the efforts of teachers and pupils.

On inquiry it was learned that the people took great pride in their schools and that for years there had been very few cases of punishment, a somewhat unusual experience at that day.

It did not require the gift of prophecy to see that the youth here schooled would as a result of these beautiful surroundings have an extra picture on the wall of their homes, howsoever humble, an extra rosebush in the yard and higher virtues in life.

The several illustrations show more forcibly than formal directions what is needed to meet the condition of easy discipline now under consideration. They give assurance that the time and care spent in making the surroundings of the school pleasant and attractive will come back to the teacher in increased interest and application in study and improved order.

In no place has a beautiful picture more influence for good than on the walls of an elementary school, and how easy it now is for an earnest teacher to secure pictures for this purpose. Engravings, chromos and other pictures are within the easy reach of nearly every school in the country, and the need of suitable frames can be met by making rustic frames, an art that is not beyond the skill, with a little assistance, of every pupil.

There are many districts in which the temporary loan of pictures by the patrons of the school can be secured by simply awakening an interest among the pupils. The wall back of the teacher's table in a rural school was thus adorned with appropriate pictures during an entire session. At the beginning of each month a new picture took the place of the one that had hung there the previous month, and each successive picture awakened a new interest. It seems proper to add that care should be taken in selecting pictures for a school. It is easy to disfigure a schoolroom with daubs of color that lend no charm, but rather dull the esthetic sense and vitiate the taste, pictures that have neither beauty nor color. The schoolroom is not the place for the portraits of men or women of immoral life. Goodness is more important here than fame or station. The schoolroom should keep in the eyes of its pupils, as well as in their hearts, the beautiful sentiment of Tennyson:

“However it be, it seems to me
’Tis only noble to be good.”

To a child goodness should ever appear as the only true greatness.

Much may also be done in this direction by adorning the unused portion of blackboards with crayon drawings and sketches, and since stencils remove the necessity of high skill in drawing, no teacher need to neglect this means of adding to the attractions of the schoolroom, if they have any blackboard space which does not have to be used, but most of our schools around here could use more blackboard if they had it.

The observance of Arbor Day in recent years has done much to awaken an interest in the planting of trees and shrubbery in school grounds. There are thousands of school grounds thus ornamented and the good work is widening.

Let us all hope and trust that ere many years all of our school grounds will be ornamented with beautiful trees, and the house will be decorated and in as good keeping as our private residences.

THIRTEENTH ANNUAL REPORT
OF THE
Indiana State Dairy Association.

ANNUAL MEETING

HELD AT

Purdue University, Lafayette, Tippecanoe County,
January 21-23, 1903.

(Stenographic Notes by J. W. Walker.)
Edited by H. E. VAN NORMAN, Secretary.

OFFICERS OF THE INDIANA STATE DAIRY ASSOCIATION.

PRESIDENTS.

C. S. Plumb, Lafayette, Tippecanoe County.....	1891-1893
Bartlett Woods, Crown Point, Lake County.....	1893-1894
W. S. Commons, Centreville, Wayne County.....	1894-1895
C. S. Plumb, Lafayette, Tippecanoe County.....	1895-1896
O. A. Stubbs, Lewisville, Henry County.....	1896-1897
S. B. Woods, Lottaville, Lake County.....	1897-1898
J. J. W. Billingsley, Indianapolis, Marion County.....	1898-1899
C. B. Benjamin, LeRoy, Lake County.....	1899-1900
C. S. Plumb, Lafayette, Tippecanoe County.....	1900-1902
J. M. Knox, Lebanon, Boone County.....	1902-1903
Samuel Schlosser, Plymouth, Marshall County.....	1903—

VICE-PRESIDENTS.

Charles C. VanNuys, Franklin, Johnson County.....	1893-1894
J. M. Knox, Lebanon, Boone County.....	1894-1895
W. S. Commons, Centreville, Wayne County.....	1895-1896
Charles B. Benjamin, LeRoy, Lake County.....	1896-1897
O. P. Macy, Mooresville, Morgan County.....	1897-1898
G. W. Drischel, Cambridge City, Wayne County.....	1898-1899
J. V. Shugart, Marion, Grant County.....	1899-1900
J. M. Knox, Lebanon, Boone County.....	1900-1902
G. V. Woolen, Indianapolis, Marion County.....	1903—

- FIRST VICE-PRESIDENT.*

D. H. Jenkins, Indianapolis, Marion County.....	1891-1892
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SECOND VICE-PRESIDENT.*

Mrs. Kate M. Busick, Wabash, Wabash County.....	1891-1892
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THIRD VICE-PRESIDENT.*

C. B. Harris, Goshen, Elkhart County.....	1891-1892
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Mrs. Laura D. Worley, Ellettsville, Monroe County.....	1891-1893
W. S. Commons, Centreville, Wayne County.....	1893-1894
H. C. Beckman, Brunswick, Lake County.....	1894-1897
C. S. Plumb, Lafayette, Tippecanoe County.....	1897-1898
H. E. Van Norman, Lafayette, Tippecanoe County.....	1898—

OFFICERS AND MEMBERS OF THE INDIANA STATE DAIRY
ASSOCIATION FOR 1903.

Samuel Schlosser, Plymouth, Marshall County.
G. V. Woolen, Indianapolis, Marion County,
H. E. Van Norman, Lafayette, Tippecanoe County,

EXECUTIVE COMMITTEE,

Samuel Schlosser, G. V. Woolen, H. E. Van Norman, Silas Holloway,
North Manchester; T. C. Burnside, Liberty.

*In 1893 the offices of first, second and third Vice-Presidents were abolished.

MEMBERSHIP LIST.

ANNUAL MEMBERSHIP.

The following persons have paid one dollar into the treasury for 1903 membership:

<i>Name.</i>	<i>City or Town.</i>	<i>County.</i>
Andrew, Thos.....	Lafayette.....	Tippecanoe.
Argo, D. J.....	Portland.....	Jay.
Baker, H. N.....	Carmel.....	Hamilton.
Benjamin, C. B.....	LeRoy.....	Lake.
Benton, G. A.....	Chicago, Ills.....	
Billingsley, J. J. W.....	Indianapolis.....	Marion.
Boyd & Drischel.....	Cambridge City.....	Henry.
Bueler, Anton.....	Bemes, Ills.....	
Chamberlain, John.....	Lafayette.....	Tippecanoe.
Christ, John.....	Washington, Ills.....	
Comfort, J. E.....	Bedford.....	Lawrence.
Creamery Package Mfg. Co.....	Chicago, Ills.....	
Dunlap, Mrs. J.....	Lafayette.....	Tippecanoe.
Elberts, W. C.....	Chicago, Ills.....	
Enger, John.....	Osceola.....	St. Joseph.
Fairfield, W. A.....	Ft. Wayne.....	Allen.
Follette, D. B.....	Fremont.....	Steuben.
Furnas, R. W.....	Indianapolis.....	Marion.
Freese, Geo.....	Nappanee.....	Elkhart.
Freese, Bennette.....	Nappanee.....	Elkhart.
Garber, Elias.....	North Manchester....	Wabash.
Gibbons, Thos.....	Elgin, Ills.....	
Gove, W. E.....	Lafayette.....	Tippecanoe.
Green, S. F.....	Chicago, Ills.....	
Gurler, F. B.....	DeKalb.....	DeKalb.
Hack, J. M.....	Crown Point.....	Lake.
Hastings, W. S.....	Sullivan.....	Sullivan.
Helman, J. Q.....	Union City.....	Randolph.
Helmer, A. E.....	Evans Mills, N. Y....	
Hellen Mertz Co.....	New York, N. Y.....	
Hobart, Mrs. Ed.....	Williamsport.....	Warren.
Holloway, Silas.....	North Manchester....	Wabash.
Hill, W. B.....	Westfield.....	Hamilton.

<i>Name.</i>	<i>City or Town.</i>	<i>County.</i>
Jacob, D. D.....	Lafayette.....	Tippecanoe.
Jenkins, D. H.....	Indianapolis.....	Marion.
Jenkus, Harry.....	Indianapolis.....	Marion.
Jessup, Laura.....	Carmel.....	Hamilton.
Kellum, Jesse.....	Indianapolis.....	Marion.
Knox, J. M.....	Lebanon.....	Boone.
Kratz, C. W.....	Evansville.....	Vanderburgh.
LaFuze, Ezra.....	Liberty.....	Union.
Lamont, Chas.....	Mooreville.....	Morgan.
Lamont, Mrs. Chas.....	Mooreville.....	Morgan.
Maish, D. F.....	Frankfort.....	Clinton.
Martin, E. L.....	New Carlisle.....	St. Joseph.
Martin, Mrs. Sam'l.....	Lafayette.....	Tippecanoe.
McComb, A.....	Chicago, Ills.....	
Meyers, F. L.....	Columbia City.....	Whitley.
Mills, O. H.....	Mooreville.....	Morgan.
Morse, W. H.....	Hartford City.....	Blackford.
Newby, Herbert.....	Spiceland.....	Henry.
Newson Bros.....	Valley Mills.....	Marion.
Parsons, Edith.....	Clayton.....	Hendricks.
Penn, B. A.....	Logansport.....	Cass.
Penrod, J. F.....	Plymouth.....	Marshall.
Peoples, Maggie.....	Decatur.....	Adams.
Rippey, M. J.....	Syracuse.....	Kosciusko.
Robbins, J. S.....	McCool.....	Porter.
Salisbury, F. G.....	Orland.....	Steuben.
Schlosser, Henry.....	Bremen.....	Marshall.
Shugart, J. V.....	Marion.....	Grant.
St. John, A. F. W.....	Columbus, Olfio.....	
Swan, G. P.....	New Washington.....	Clark.
Stutsman & Son, J. S.....	Goshen.....	Elkhart.
Tobias, Chas.....	Nappanee.....	Elkhart.
Van Norman, H. E.....	Lafayette.....	Tippecanoe.
Welborn, J. M. T.....	Bridgeport.....	Marion.
Willey, F. S.....	Lafayette.....	Tippecanoe.
Wilson, W. D.....	Osgood.....	Ripley.
Word, Sam.....	Lattaville.....	Lake.
Yoars & Son, P. G.....	Amboy.....	Miami.
Yoars, Geo. M.....	Amboy.....	Miami.
Young, Bert.....	Bloomington.....	Monroe.



INDIANA CREAMERIES.

The following list is based on information at hand since July, 1903. Request for information was sent to each creamery in the State so far as addresses were at hand. Most of them responded. Frequent requests for names and addresses of creameries and cheese factories in the State are received by the Secretary, and it is hoped that those interested will kindly inform him of errors and omissions in this list as well as of the establishment or abandonment of any establishments.

<i>County.</i>	<i>Postoffice.</i>	<i>Manager or Secretary.</i>	<i>Butter or Cheese Maker.</i>
Allen.....	Huntertown .....	.....	.....
Cass.....	Logansport	Chas. Arnold	Henry Meyer.
Clark.....	New Washington (Cheese)	G. P. Swan .....	.....
Clinton.....	Rossville (Cheese)	Z. Truesdale .....	.....
Dekalb.....	Butler .....	.....	.....
Dubois.....	Jasper	L. J. Purdon .....	.....
Elkhart.....	Nappanee	Geo. Freese Sons	C. Tobias.
Fountain.....	Attica .....	.....	.....
Fulton.....	Kewanna	Clifford & Penrod .....	.....
	Rochester	Beyers Bros. ....	.....
Hamilton.....	Arcadia	Henry Waltz	Henry Waltz.
	Westfield	W. S. Hill	W. B. Hill.
Henry.....	Blountsville	Cran Hodson	Jas. Ridding.
	Lewisville	J. A. Bartlett	C. J. Richardson.
	New Castle .....	.....	.....
	New Lisbon .....	.....	.....
	Springport	W. A. Woollen	W. A. Woollen.
	Straughn (Cheese)	E. E. Henley	H. W. McGrath.
Johnson.....	Trafalgar .....	.....	.....
Knox.....	Freelandville	F. H. Kruger	Aug. Loehr.
	Vincennes	G. B. Riley	G. B. Riley.
Lagrange.....	Lima	E. R. Craig	Scott Wylie.
	Topeka	H. M. Zook	E. E. Zook.
	Wolcottville	H. L. Taylor .....	.....
Lake.....	Brunswick	Julius Echterling	H. Matthews.
	Creamburg	W. Schleicher	F. Hilkin.
	Creston .....	.....	.....
	Dyer	F. Kalvelage	J. Breuscher.
	Schereville .....	.....	.....
	St. John .....	.....	.....
Laporte.....	Hanna	A. M. Terrey	Frank Lennick.
	Kingsbury (Cheese)	H. H. Long	J. A. Ensign.
	Union Mills	D. D. Wakeman	D. K. Wakeman.
	Westville	Herman Kresel	Herman Kresel.
Marion.....	Cumberland	Jos. Berg .....	.....
Marshall.....	Bremen	Henry Schlosser	C. E. Holderman.
	Plymouth	Sam Schlosser	C. F. Hostetter.
Miami.....	Amboy (Cheese)	G. M. Yoars	Frank Arnold.
	Deedsville	S. F. Robins	C. Wildman.
Noble.....	Avilla	J. M. Haines	D. D. Denison.
Porter.....	Hebron	B. F. Nichols	B. F. Nichols.
	Valparaiso	S. E. Rigg	Chas. Morrow.

<i>County.</i>	<i>Postoffice.</i>	<i>Manager or Secretary.</i>	<i>Butter or Cheese Maker.</i>
Randolph	Bloomingsport.....	Mrs. D. W. Knight	A. Knight.
	Modoc.....		
	Winchester	Tyre Puckett	W. A. Coppel.
Rush	Carthage.....	H. E. Stager	Chas. Jenkins.
Tippecanoe	Lafayette.....	Purdue Univ. Creamery.....	H. N. Slater.
Spencer	Chrisney.....	E. Maier	Chas. Atkinson.
	Dole		
Starke.....	Winona.....	Ed. Merkert	Ed. Merkert.
Steuben	Fremont	J. E. Fralick.....	G. Stroh.
	Hamilton.....	H. Sweet.....	B. C. Raymond.
	Orland	F. G. Salisbury.....	John Stauble.
Sullivan.....	Sullivan.....	W. S. Hastings.....	W. S. Hastings.
	Carlisle.....	D. Howard	C. W. Lisman.
	Farmersburg.....	W. S. Baldrige.....	H. E. Bennett.
Union.....	Liberty.....	T. C. Burnside.....	J. W. Burgoque.
Vigo	Prairie Creek.....		Perry L. Johnson.
Wabash	North Manchester.....	Silas Holloway	A. V. Holloway.
Wayne.....	Cambridge City (Cheese).....	Geo. W. Drischel	Geo. Usher.
	Centerville.....	A. L. Lockridge.....	John W. Rohe.
	Fountain City.....	A. L. Lockridge.....	Peter Cutler.
	Hagerstown	T. A. Schaffer.....	O. C. Werking.
	Webster.....	A. L. Lockridge.....	L. B. Harris.
	Williamsburg	A. L. Lockridge.....	
	Whitley	Churubusco.....	E. E. Renberger.

ICE CREAM AND MILK.

<i>County.</i>	<i>Postoffice.</i>	<i>Dealers—Firm Name.</i>	<i>Pres. or Mgr.</i>
Allen.....	Ft. Wayne.....	Mondamin Meadows Creamery.....	T. E. Ellison.
Carroll	Delphi	Delphi Ice Cream Co.....	D. N. Dane.
Delaware	Muncie.....	Brooks Creamery Co	Geo. W. Brooks.
		Fowler & Co.....	
Fayette.....	Connersville.....	Connersville Ice Plant.....	
Floyd.....	New Albany.....	Wm. J. and Geo. Goodbub.....	
Hamilton	Sheridan.....	Indiana Condensed Milk Co.....	
Marion	Indianapolis.....	American Condensed Milk Co.....	
		W. H. Ballard.....	
		R. L. Furnas.....	
		Indianapolis Creamery Co.....	D. W. Jackson.
		Jessup & Antrim.....	
		J. T. Polk.....	Sam O. Dungen.
		Putnam Creamery Co.....	A. L. Lockridge.
Lagrange.....	Wolcottville.....	H. L. Taylor	
Porter.....	Valparaiso	J. Foster.....	
Ripley.....	Osgood	W. D. Wilson.....	W. D. Wilson.
St. Joseph	South Bend.....	Layton Sanitary Milk Co	
Tippecanoe.....	Lafayette	Chamberlain & Son.....	John Chamberlain.
		Kienly & Co.....	Geo. Kienly.
Whitley	Columbia City.....	Columbia City Creamery Co.....	F. L. Meyers.
Wabash	Wabash	A. S. Gilman.....	
		Amos Gripe.....	

ARTICLES OF ASSOCIATION OF THE INDIANA STATE DAIRY ASSOCIATION.

(As amended December 7, 1899.)

Article 1. The name of this Association shall be "The Indiana State Dairy Association."

Art. 2. The officers of this Association shall consist of a President, Vice-President and Secretary-Treasurer, and an Executive Committee, consisting of the President, Vice-President, Secretary-Treasurer and two others elected by the Association. The Secretary is authorized, whenever necessary, to employ an assistant secretary of his own appointment, to assist at the annual meeting, who shall be paid for his services as the Executive Committee may decide. A committee of two, to audit the Secretary-Treasurer's accounts, shall be appointed by the President at each annual meeting.

Art. 3. The officers shall be elected to serve one year, or until their successors have been elected.

Art. 4. The regular annual meetings shall occur at such time and place as may be designated by the Executive Committee, or by majority vote of the Association at the annual meeting.

Art. 5. Any person can become a member of this Association for one year by the payment of a fee of one dollar. Upon the payment of ten dollars, a person may become a life member. Honorary members not to exceed five may be elected, but said election is not to hold for over two years, excepting by re-election.

Art. 6. The President shall have power to call a special meeting at such time as in his judgment the interests of the Association demand.

Art. 7. The Executive Committee shall have power to transact all unfinished business.

Art. 8. The Treasurer shall be the custodian of all the funds belonging to the Association, and pay out the same on the order of the President. The Treasurer shall also furnish sufficient bond, as determined by the Executive Committee, to guarantee all moneys owned by the Association, handled by him, the said bond to be deposited in such national bank as may be designated by the Executive Committee.

Art. 9. The officers of this Association shall perform such duties as usually devolve upon officers of similar organizations.

Art. 10. The President and Secretary shall each be allowed out of the general fund an amount equivalent to their actual expenses while attending Association meetings. When the Association receives State aid the Treasurer is authorized to meet the expenses of the Executive Committee in all cases of called meetings where executive business is transacted.

Art. 11. These articles may be amended by a majority vote of the members of the Association present.

PROCEEDINGS OF THE THIRTEENTH ANNUAL CONVENTION OF THE INDIANA STATE DAIRY ASSOCIATION, PURDUE UNIVERSITY, LAFAYETTE.

WEDNESDAY MORNING.

January 21, 1903.

President C. S. Plumb having left the State for permanent residence, Vice-President J. M. Knox became President, and called the meeting to order.

The President: Ladies and Gentlemen—We will now open the Thirteenth Annual Meeting of the Indiana State Dairy Association.

Invocation by Rev. Kindig.

Music by Purdue University Mandolin Club.

The President: In the absence of President Stone, we will introduce Prof. Goss, who will extend greeting.

Prof. Goss: Mr. President, Members of the Indiana State Dairy Association, Ladies and Gentlemen—As the President was leaving town yesterday, he called me up by telephone and said that he would be unable to keep his engagement here, and asked if I would not come over and bid you welcome. It is a habit at Purdue for everyone to do as the President says, and consequently I am here by his direction, and bid you a most hearty welcome. I do this for the President in behalf of the members of the faculty and students of Purdue, because we are all very glad to have this State Dairy Association meet at Purdue.

I don't think it is necessary for me to call attention to the pride which all people interested in the growth of the dairy interests in this State have in the progress of this Association, neither do I think it necessary for me to tell you how close is the connection between this Association and this institution at which you meet for the first time today; but I may express the hope that the reception which we are able to extend to you on the occasion of this meeting will be such as to make you desire, at least, to come for another meeting.

You see as you look about you something of Purdue in relation to agricultural work. I hope you will see much that will please you; however that may be, I am certain if you come a year from this time you will see more that will please you, because the progress of Purdue in its agricultural work has been rapid and steady, and it must be so in future years. It is perhaps not too much to say that it has not been long—fifteen

or eighteen years perhaps—since the equipment of the whole institution was far less than the equipment and promise of equipment which you see in this one building, so if it is true that in a few years a single department can gain so materially, then how great it may be when Purdue gets what it considers its natural growth in the future.

I hope as you have regard for the things which are of professional interest to you, that you will not neglect entirely these things which will certainly be of interest to you.

On the other side of the street there are laboratories for chemistry, for electrical engineering, mechanical engineering, civil engineering, and pharmacy; there is a library; there is a fine new building going up, and many things of that sort in which you will be interested. I hope as far as practicable, those who are attendants at this meeting will take occasion to inspect and enjoy some of these laboratories.

Just at the present time I think we are beginning to realize more than ever before the very close connection between the engineering work and the work of the dairyman and the agriculturist in general. Just think what a figure the machine cuts in your daily affairs. Not only in tilling the soil, but in cutting feed and turning out your manufactured products. The mechanisms with which you deal vary all the way from the rougher processes to the most delicate mechanism of the creamery. Now, that is significant. It means this: To make great progress in the dairy business, we will need to make some progress in the engineering profession, and as we look forward to future development I see we are going to draw nearer and nearer to the engineering and agricultural professor. I don't know but that it is entirely conceivable before very long that the farmer will be like the general manager of a railroad. He will have his work so organized that all he will need to do will be to question his heads of departments and ascertain how the work is progressing, and things will move on with the precision and force that characterizes the movements of our railroad business. The farmer will have his superintendent of machinery, he may have his engineer in charge of the grounds! and I don't know what all, Mr. President, he may not have, but the possibility is very great along that line. In conclusion permit me to say again that Purdue is proud to have you its guest, and we extend to you a most cordial and hearty welcome. I thank you, gentlemen.

The President: Mr. Samuel Schlosser, of Plymouth, will respond.

The Secretary: I have a letter, Mr. President, that I think ought to come before the Association before we hear from Mr. Schlosser, and with the consent of the members I will read it:

Mr. H. E. Van Norman, Secretary-Treasurer State Dairy Association:

Dear Sir—Upon the occasion of the first meeting of the State Dairy Association in Lafayette, and its first official visit to Purdue University,

I had anticipated the honor of extending, on behalf of the University, a cordial welcome to the Association. It is with great regret, therefore, that I find it impossible to take part in the opening of the meeting on account of absence from the city. Will you kindly extend to your colleagues my assurances of good wishes for a most successful and entertaining meeting

The University, which is at all times interested in all that stands for industrial progress, anticipates, not unselfishly, I hope, much good to come from this visit of expert dairymen. We are laying the foundation for a dairy school at Purdue University, and in this work we realize the need not only of practical advice and suggestions from those who fully understand the needs of the dairy industry of Indiana, but we need also the friendly co-operation and interest of everyone connected with the industry.

It would seem to one not acquainted with all the details of the business that there is not only abundant opportunity, but a great need for a large development of dairying in this State. The scarcity and high prices of dairy products at certain seasons; the inferior quality of much that is offered in the market; and the very evident lack of general recognition of the importance of dairying in a scheme of diversified agriculture, show that there is need to discuss the business of dairying in such meetings as this, and to study the scientific principles of dairying in such schools as Purdue. We desire to do our part in the enterprise, and in extending an invitation to your society to meet here it was with a feeling that we might all profit from the gathering.

You are heartily welcome here, and we desire that your meeting may be a successful one, that you may spend the brief time here pleasantly, and that you may carry away with you good opinions of Purdue University.

Cordially,

W. E. STONE,

President.

Samuel Schlosser: I desire to preface my remarks with a few facts regarding the importance of the dairy industry. I quote from a little pamphlet I received a few days ago from Washington. You will pardon me: "The aggregate value of the annual dairy products of the United States considerably exceeds five hundred million dollars." In accordance with some estimates it is placed at six hundred million dollars. Taken at an average between these estimates the value is greater than the yearly hay crop. We can hardly realize that the value of the dairy products is greater than the yearly hay crop, not only that, but greater than the crops of wheat and oats combined, and much greater than the crops of cotton, tobacco and rice. Only one crop exceeds the annual value of the dairy products, and that is corn. One thing the dairyman needs, and especially the dairyman of Indiana, is encouragement. I get a great deal of encouragement from these figures and these statistics, and I bring them before you at the opening of this meeting, so that

we may realize that we are not the least part of the great agricultural interests of the country. We are at the top. I do not believe the Indiana dairymen realize this, and for that reason I want you to realize at this very moment at the opening of this meeting that we are representing a great branch of the agricultural interests of the United States.

I am going to give you a few other figures in connection with the dairy interest of Indiana as compared with some of our neighboring States. We find out by the census of 1900 that Iowa produced in that year 147,000,000 pounds of butter; Wisconsin 115,000,000 pounds; Minnesota 82,000,000 pounds, and Indiana produced 54,000,000 in round numbers. While we are not leading in butter production, yet Indiana produces a considerable amount of butter. Out of the 147,000,000 pounds produced in Iowa, 85,000,000 were produced in creameries; out of the 115,000,000 pounds produced in Wisconsin, 71,000,000 were produced in creameries; out of the 82,000,000 pounds produced in Minnesota, 41,000,000 were produced in creameries, and out of the 54,000,000 pounds produced in Indiana but 3,500,000 were produced in creameries. What is the difference? The first three States that I named produced nearly one-half of their butter in creameries. This alone is a very significant fact. It brings to me the fact that Indiana is not making the progress in the dairy line that it should. I do not want to discourage you at the opening of this meeting, but I want to bring this fact before you. The object of bringing this meeting to Lafayette this year was to get in closer touch with the educational side of the business. We have a magnificent building. This building belongs to the farmers of Indiana, and, as a part of the farming industry, we claim a share of it, and we feel grateful to the President of the University and the people that have this institution in charge that they gave us as much space in this building as they did, that they are showing an interest in the dairy business, and that they are willing to assist the dairymen of the State to develop the business; and in behalf of the Association, I can say we are glad to come to Lafayette this year. We appreciate this opportunity of coming and seeing what is being done here for the interest of the agriculturists of this State, and I am sure that we will enjoy ourselves while we are here. I am sure we will be interested and go home with new aspirations and new ambitions, and we also may be of some assistance to the people that have this work in charge here, that we may encourage them in their work. I believe sometimes that people who are doing educational work become discouraged, and the young men and instructors need our encouragement, and we hope to encourage them. I thank you.

The President: We ought to be thankful for these talks; they are encouraging. Now, we will listen to the Secretary and Treasurer's report (See page — for Treasurer's report.)

The President: I will appoint Mr. Samuel B. Wood, Chairman, and Mr. Burnside and Mr. Shugart as members of the Auditing Committee.

We have for our next paper, "Why I Keep Cows and a Silo on a Fruit Farm," by Joe A. Burton.

The Secretary: Nothing shows more the uncertainty of life than getting up a program for a meeting in advance. The first man on the program is unable to be present, but he has sent his paper.

WHY I OPERATE A DAIRY AND A SILO ON A FRUIT FARM.

JOE A. BURTON, ORLEANS.

My farm contains 240 acres. Apple growing is my hobby, but only about one-ninth of my farm is in orchard, a little more than 100 acres is in bluegrass, the rest devoted to grain and clover. Now, how to realize the most out of these crops with the labor and attention we care to give, has determined our pursuits. Hog feeding is, and long has been, an important part of our operations. It pays us better than any other branch of stock raising. It is a valuable adjunct to apple growing. The successful orchard in our locality is on poor land made rich. The orchard is the hog lot. The hog lot, as we operate it, is a rich place, made so by concentrated feed given the hogs. Grass, alone, is not a successful hog feed. They need a richer food. This we get in part out of our corn crop. But ours is not a corn region, hence it is important to make concentrated hog feed out of bluegrass and cornstalks. This we do through the agency of our Jerseys. By this process we get a valuable by-product in the form of cream. We realize about as much for this as we do for the main product, the skimmed milk. I don't mean to advance the idea that the analytical constituents of the skimmed milk are worth as much for feed as the cream is to sell, but its action on the habits and life of the hog is such that the final income is greater. With a milk ration our hogs do well any time of year. It so shortens the fattening period that we realize on the investment several times in a year. Grass, apples, milk and corn make short and cheap work of the hog feeding. By the help of the dairy we can fatten hogs on bluegrass and cornstalks. We do not operate our dairy on the high pressure method. We correspond about to the man who produces a 1,000 pound steer at two years old. We get about \$35 a year per cow for cream. Rarely buy any feed save corn for hogs. Whether we are operating our dairy by best methods is not the question. We were asked to tell why we operate a dairy on a fruit farm. We are not dairy-

ing through sentiment, but believe our profits in dairying and hog feeding are three times as much as they would be in beef raising and hog feeding. For ten years we have milked from ten to twenty-five cows and fattened about 300 hogs a year. The heifer calves are quite an item with us. It is generally conceded that the beef calf is much more profitable than the dairy calf. Our bull calves are worth nothing comparatively. Heifers bring us \$25 to \$50, at two years old, and cost much less in feed than the beef calf. The above are our reasons for keeping dairy cows on our farm.

We operate a silo because it is good common sense to do so. It permits us to store our corn and cornstalks while the weather is good and days long. It takes the cornstalks from the ground in time to sow wheat. It stores our feed in the least possible space and most convenient form of feed. It saves husking, shelling and grinding. It don't matter whether it goes into the silo wet or dry, while it does matter much in what condition fodder is worked. I have had this season a shredder sitting at my barn for a whole month, the weather permitting us to shred only one-half day. Silage bears nearly the same relation to fodder that grass does to hay. Hay has about the same amount of ingredients in the dry matter it contains as grass. But everyone knows that we can not fatten stock on hay, while we can on grass. It is a succulent feed and keeps stomach and bowels in a healthy condition. The opinion of the cow in regard to a good feed is worth something. In the winter of 1900 and 1901 we had silage and cowpea hay for our cows. When allowed all the silage they could eat they would not eat the pea hay. Our dry cattle, that did not have silage but all the fodder they wanted, were ravenous for the pea hay. If silage was no better feed than fodder it would still pay to make it. We find it costs about one-half as much to make an acre of corn into silage as into shredded fodder. Let us repeat: "We operate a silo because it is good common sense to do so."

The Secretary: I would like to ask if there are any persons here using skimmed milk for hog feeding?

The President: Mr. Hadley can answer that question.

Mr. Hadley: I am.

The Secretary: What proportions do you use?

Mr. Hadley: I don't go according to any specific method. I put in a little shorts, and feed some to different bunches of hogs I have around. I have hogs that I get fancy prices for, and sometimes I think I get as much out of my skimmed milk as I do for the cream.

The Secretary: Do you find the shorts mix better with the skim milk than corn meal?

Mr. Hadley: I never tried corn meal with it; but I think I would like the shorts best, though.

The President: Mr. Gurler, do you feed some, too?

Mr. Gurler: Yes, sir. We feed our skim milk exclusively to our hogs, excepting what goes to the calves. I keep no calves that are not first-class. We have a good deal of milk, and we only keep hogs enough to consume our milk with very little corn or anything else. It was a question of economy that prompted us to do so, and the result was very excellent, and we have pursued it; and for breeding purposes, I have been feeding nothing but skim milk. We take a sow and put her in a pen some little time before she litters, and keep her there until the pigs are ready to wean. We do not keep more hogs than enough to consume the milk. When the pigs are weaned, we take the mother away and feed them nothing but milk until they are six or seven months old. Then they go to the stock yards, or go to some person for breeding purposes. They usually run from about 175 to 200 pounds in weight, and we always get top prices for them when we take them to the stockyards. We have sold a good many of them for breeding purposes. I think from what I have seen in the papers recently that it is coming to the point where skim milk furnishes nearly all the necessary ingredients for growing pigs. It has been the experience with us, at least. It is only when we want to finish them for our own use or have an abundance of corn that we feed them any corn at all. In other words, the feeding of skim milk, feeding it immediately from the separator in abundance, about as much as they want, we find is profitable when judged by the money we get from the sale of the hogs. We know about the amount of hogs we sell, we know how many pounds of milk we get in a year, and we know about what we have fed our hogs. We think it is about the most profitable thing we do.

Mr. Gurler: Did you ever make any estimate of the value of this skim milk, the cash value?

Mr. Woods: We are not feeding any at the present time, but we did at one time feed a great deal of skim milk. We always thought it paid better to have more pigs and not feed exclusively skim milk, but feed corn with it. With the present price of corn and pork, it would be more profitable buying the corn at those figures and mix and feed it. I find that pigs will do better on skim milk and corn than they will on corn alone or skim milk alone.

The Secretary: What feed balances up the skim milk best?

Mr. Woods: Corn.

The Secretary: Why?

Mr. Woods: Because it makes it balance.

Mr. ———: It is a question in my mind which pays the best, the butter or the skim milk. Me and my wife are partners together on that line, and I make up my mind I get the most money, from the fact that I get the skim milk and feed it to the hogs and the hogs bring in the most returns. My friend has said 20 cents. That is a very low estimate. I am sure that mine is worth $33\frac{1}{3}$ cents a hundred.

The President: I would like to ask the gentleman what proportion of corn he feeds with his skim milk?

Mr. ———. I feed a great deal of corn. I use the skim milk not for a balanced ration; but I feed the greater quantity to the smaller pigs and greater quantity of corn to the larger pigs. I would say that the ration would be about one-third.

Mr. Gurler: I have reached this conclusion that the skim milk is worth half as much per hundred pounds as corn is worth per bushel. I agree with this gentleman over here that it is better to feed more corn with the milk. He would have got more money if he had fed more corn.

The President: If corn was worth 40 cents a bushel, you value milk at 20?

Mr. Gurler: If corn is worth 60 cents a bushel and skim milk is 30 cents, that is a low estimate.

Mr. Woods: He does not consider for the young pigs that a hundred pounds of skim milk was worth as much as two bushels of corn.

Mr. Gurler: It is worth more than that; it is worth that for the actual weight it will produce, and you can't start pigs off without skim milk.

Mr. Woods: I understand a hundred pounds was worth half as much.

Mr. Gurler: I did put it that way; for young pigs I think you are right, because there is nothing that will take the place for young pigs soon after weaned. And then there is another point. My experience is that a pig at fifty pounds will make a greater increase from skim milk and corn than it will from skim milk or corn, either, alone.

Mr. Burnside: I don't believe that the farmers place a high enough value on skim milk for feeding hogs, and for this reason in the corn belt we all feed too much corn, and in feeding a bunch of hogs we all know when we have plenty of skim milk that these same hogs will get along better from the beginning, they will gain more pounds, their hair is better and they are in better condition. It is not only the good feed of value in the feeding of skim milk, but it acts as a condition powder for those

hogs. In other words, it enables them to make more growth, a good deal, than they would without the skim milk. I had a bunch of hogs last season, and I believe I can prove it if you will pin me down to it, that that skim milk that I fed that bunch of hogs realized me 50 cents a hundred. Of course, I got \$7.35 for the hogs, but that is the price I think the skim milk realized me.

Mr. Gurler: I don't doubt it.

Mr. Burnside: And when a farmer feeds skim milk in connection with corn, and feeds it judiciously, and don't feed too much of it (I believe the ration ought to be four to one; that is, four times as much corn as skim milk), I believe you will realize greater results from it than you will to feed more skim milk.

Mr. Follette: I am not a pig man, but my brother is quite a man to raise hogs. He bought the milk from the creamery at a cent a gallon, and he seems to have good success in raising pigs on the buttermilk and shorts, and he has fifty-two head now that weigh from 100 to 125, and he is feeding them entirely on buttermilk and corn, and I believe buttermilk is far cheaper than skim milk at a cent a gallon.

The Secretary: What is your proportion of shorts and corn?

Mr. Follette: He generally feeds these 52 head about 50 baskets of corn and enough shorts not to thicken it too thick.

Mr. Gurler: I am a crank on this milk question, and you will find it out. Now, I understand the young man to say that buttermilk was cheaper than skim milk.

Mr. Follette: That we get more nourishment from buttermilk than skim milk.

Mr. Gurler: I don't believe you did if you did the proper churning.

Mr. Follette: I don't know about that.

Mr. Gurler: I don't think there is any difference in the value of buttermilk and skim milk.

The Secretary: I think Henry gives it as of about equal value.

Mr. Gurler: I want to tell you a little of my experience 35 years ago. I would get my pigs up to about 300 pounds, and then I would finish them off with corn for nearly four months. Well, I would have a nice bunch of pigs, but when I would begin to move them to get them to market, they would break down. Their bones would break in the thighs. I was in the summer dairy then, and then I changed to a winter dairy, and I had some

milk all fall. I began to study this question, and I used to feed some shoats with the milk and some corn, and when these pigs got at the same age, there would not be very much difference in weight and size, but they would stand on their feet so well, and I have had men come there and look at my pigs and they would declare they were not pigs at all; they would declare they were old hogs.

The Secretary: What made them stand up?

Mr. Gurler: They had had a balanced ration; they had the elements in their food to make them strong on their feet.

Mr. Drischel: Mr. Gurler has talked on the subject of milk; now I would like to get on the question of whey. You run twenty-five to thirty-five pigs for eight or ten months, and you will feed all that they can drink, and you will probably give them a basket of corn in the morning and probably one in the evening, and they are anxious for this whey, especially in the fall and winter time. This is sweet whey up to that time. When they get 140 or 150 pounds they won't drink so much whey, and then we give them about six baskets of corn per day, that is the proportion, and still give them all the whey they possibly can drink, and that same ratio of corn after that, and we think that the average we get is about one-third whey and two-thirds corn in the price.

The President: Is there anything further on this subject? I will say this has been a very interesting subject, and I think there has been some points brought out that will be profitable. We will now have Mr. Gurler tell us something about the silo.

THE SILO—ITS CONSTRUCTION AND VALUE.

H. B. GURLER, DEKALB, ILLINOIS.

This word "silo" is a stumbling block, to begin with. Silo and silage—I can remember how I stumbled very much when I first read it. If, in place of that, we had used the term "a feed can" and "canned feed," we would simplify the matter for the farmers. That is what it amounts to. A silo is a place where we put up canned feed for our stock, and silage is canned feed.

Mr. Helmer: Tell us what ensilage is.

Mr. Gurler: Ensilage is silage. We have dropped off a part of it. There is no lady that has not put up fruit, and she would have given us a whole lot of ideas if we had started in in that way. There is no question about that.

Now, I want to say, I consider sound silage as much superior to dry feed as canned fruit is to dry fruit. I made that statement at one time in the presence of Dean Davenport, of our University of Illinois, and at the close of the session he said: "Mr. Gurler, that was a fair assertion," and now I want to impress this on you. The superiority of green food put into a silo, so that it comes out in a sound condition, over the food that you dry in the shock in the field and keep it in as perfect condition as possible, is very great, and when you get the condition we had last fall, with all the rain we had, the shock corn up in our country would not bring a fair price, and I think I am safe in saying that it is damaged fully 50 per cent., the corn that was cut.

In our early experience, I made the mistake of cutting our corn too early, before the nutritious parts of the corn had developed. The corn is in that condition that the animals would fill themselves with it and bellow with hunger. It was 90 per cent. water, or more; I don't know but 95 per cent., and from that we have gone to the other extreme. I think there are many putting up their silage who are letting it mature too far to the point that the animal does not digest nearly all of it. I know that has been my own experience. I went from one extreme pretty well to the other. I now put my corn in the silo so that I find that the cows digest all the corn, and that is in the roasting ear stage. That is the best condition, I am satisfied, to get the best results. I can not rely entirely upon the chemist's finding. They find the actual proportion, but they do not always agree with the animal. Nothing to their discredit, at all. When my silage would be gone and I would have to change onto the first cut corn from the field, and I would be forced to make this change before it was ready for silage, I always have suffered in the flow of milk. That has been a surprise to me. I thought I would get an increase in the flow of milk, but every year I just meet that same condition; and I am not alone in that. Now, I remember distinctly one farmer that puts up a large amount of silage in McLean County, that has told me repeatedly of having the same experience. The question comes up, why should that be so? I simply have a theory for it. The silage goes through a process similar to the first stages of digestion. I will never forget talking with one of the best physicians in my town. He was a personal friend of mine, and I used to discuss these matters with him and get a good many ideas from him. I was describing to him the different processes and conditions this food went through, and when I got through he says, "Gurler, that is simply the first stages of digestion." It may be there is something comes from the change of food when you make that change. Sometimes one food may be just as good as the other after they become accustomed to it, but I find that even if I put them back on the silage it will take several days to bring them up, but if I keep them on that food (green corn), then they do not come back like when they were on the cured silage. A few days ago I was in Chicago, and there had been a meeting—there were

several men that were superintendents of different departments in Borden's great enterprise up there. One of these gentlemen says, "Gurler, is there any reason that the Borden people should refuse to take the milk from the dairies that feed silage?" And I says, "Yes, there is a reason, but it is not the fault of the system, but it is the fault of the men." Silage is a moist feed, and if it is exposed for a few days it will spoil in the average weather, and if a person is not systematic in going over the surface of the silo every day it will spoil before it is fed. You must not have the silo too large. Don't forget that point. You must uncover this surface systematically. You must keep down the decay. The average farmer won't take the proper care along that line. He will allow this surface to be exposed so long that it will decay and his cows will be sick. Several years ago I used to have an argument every time I would meet a prominent member of one of the milk stations in the city, and he would commence an argument with me about silage and try to ridicule me for feeding silage. I told him one time, "I will wager you two to one that you can't tell the milk from a silo-fed herd unless that it is sweeter milk of the two," and he has never mentioned it to me since. Some of you know about the work that was done at Champaign with silage and clover hay. They had a farm there that they were retailing milk from for the college, and they divided off the cows, one part they were feeding clover hay, which we consider the most superior as a dry feeder, and the other on corn silage, and they put this milk out to their customers, they not knowing which was which. Their customers were among the faculty, largely, and there was a large majority of those customers that selected the milk of the silo as the best milk of the two. When they get up and argue against silage as a food, they don't know what they are talking about; and I just come back and say, as I said when I started out, that silage is as much superior to dry feed as canned fruit is to dry fruit. There are not very many of us that would like to have the mistress of the house put us back on dried apples and peaches. We would get sour. Just the same with the cows and silage.

Now, Mr. President, what do you say about their asking questions as I go along?

A Voice: Mr. Gurler, what experience have you had with sorghum silage?

Mr. Gurler: I never had any.

Mr. Burnside: Do you use any special brand of corn?

Mr. Gurler: My corn, the majority of it, I plant is ordinary field corn. But now I plant an Early Dent corn first and then I plant some of the medium, and then I plant some of the Virginia. You see I put up 2,000 tons, and I can't do it in a minute. I have a good straight two months' work.

Mr. Burnside: All white corn?

Mr. Gurler: No, we grow over in Illinois mostly the yellow. I put sweet corn in the silo last fall for the first time, but I haven't fed it yet, and can't tell you anything about it. There would be more sugar.

Mr. Burnside: Do you plant corn that grows tall?

Mr. Gurler: I have some of that; I have some over fourteen feet high. I have corn, this B. and W. corn, which is sixteen feet high.

Mr. Burnside: Don't you think it advisable to grow that?

Mr. Gurler: I am answering that. Now, maybe I will go over the point here. The most desirable silage I ever had was this Yankee corn, and I grew that several years ago on a piece of low ground I had ready to plant about the middle of May. My land was tilled, but I found that it was not tilled sufficient, and I could not plant it, and when I did I had to replant it. I got it planted about the last of June or the first of July. I knew it would not do to plant native corn, and I got some Yankee corn, which was nice roasting ears when I put it in the silo, and when I reached that, the cows came up on their milk, and when I quit using it they went down.

Mr. Burnside: Did you ever try it again?

Mr. Gurler: No, I never did; I would have had to get a special planter to plant the rows closer together.

Mr. Burnside: The taller your corn the less acres it would take to fill your silo?

Mr. Gurler: I have corn of this Virginia seed that is tall.

Mr. Follette: What cutter do you use?

Mr. Gurler: I cut this silage two inches in length. Perhaps I had better explain. It is a cutter that was gotten up at Bowling Green, Kentucky. It is more like a threshing machine. There is a seven-foot cylinder on which the knives are fastened, and then they cut as they go around, and after the knives have cut the corn, it goes on and is picked to pieces. After the corn goes into the silo you may pick it up and you will have no idea what the size of those stalks were. You may have stalks as big as your wrist, but here they are picked to pieces, and I have less waste, less of the food rejected than any I have ever used. I put a sixteen-horse engine back of this cutter. Well, if I told you how quickly we put tons through there, you might not believe me, but actually we put a ton through there in about two minutes and a half; but the men can't stand that kind

of work, but I can do all I need to, and this machine having no feedrest to carry simplifies the thing, and the condition it leaves the feed in, being picked to pieces after it is cut.

The Secretary: Is that machine in the market generally or is that an experiment?

Mr. Gurler: It is made now by the Whipman Agricultural Company, of St. Louis. The machine never has been pushed; the public doesn't know the merits of that machine.

Mr. Burnside: Do you use a blower or elevator?

Mr. Gurler: I use an elevator. Let me say this: do not allow any agricultural machinery men to fool you into getting a double chain elevator. I went to work and got up an elevator of my own, using a single chain, and I have used that nearly two years, and we have not had an hour's delay with that elevator. The only delay we had with that last fall was when the pin came out that holds the chain links together. When a man has twenty men around, and sometimes I have twenty-five men, to have a breakdown for two or three hours, runs into money mighty fast.

Mr. Gates: If you had two crops ready for the silo at one time, would you use one at a time or use both at a time?

Mr. Gurler: I mixed them. If there is no advantage any other way, it would be an advantage when you come to feed. I put some beans in last fall, but I haven't come to them yet.

Mr. Young: How about clover silage?

Mr. Gurler: I can't answer that question. I have had room for all my clover, but I haven't much faith in clover silage from what I have read of it. The different varieties of corn, I think, are not so much different as the people think.

Mr. Burnside: Do you want your silage well eared? Do you want an ear on every stalk?

Mr. Gurler: If it would be I can produce twice as much feed per acre.

Mr. Burnside: Well, would you rather have it well eared; have it rich in corn?

Mr. Gurler: Yes, I would, to say nothing about what it costs me to grow it. That is the point you wanted?

Mr. Burnside: Yes, sir.

Mr. Gurler: Yes, it is of greater value.

Mr. Burnside: Now, what do you feed in connection with silage? I don't mean your concentrated feed; what I mean, do you try to feed more dry fodder with your silage?

Mr. Gurler: Yes, sir: I have fed this winter some fodder, and then I fed some old hay.

Mr. Helmer: What does it cost you per ton for plowing, planting and putting the silage in the silo?

Mr. Gurler: Well, sir, for several years I don't know, for I have made my boys do that. I have grown the corn and put it in the silo for just a trifle under a dollar a ton, and I figured into that the interest on the land and the labor. Some men can do it for less than that.

Dr. Woolen: What is it worth a ton?

Mr. Gurler: Now, you have got me; that depends on what other people consider it worth.

Mr. Wood: Mr. Davis bought his at wholesale the other day and paid \$3.50 a ton for it.

Mr. Gurler: He must be a lover of silage; that is a pretty good point in favor of it.

Mr. Schlosser: What do you consider a fair price?

Mr. Gurler: One-third the price of hay. Now, that is theoretical, but I mean that and I think that is putting a low estimate on it.

Mr. Schlosser: What kind of hay?

Mr. Gurler: Take a mixed hay.

Mr. Burnside: Is it your experience that silage is the cheapest feed that you ever fed?

Mr. Gurler: If I had to give up the silo I should be compelled to quit business. I think now we are milking 200 cows. I have 195 in the stable that are producing certified milk; then I have some strippers in another stable, I have a lot of dry cows, and I have some forty or fifty heifers I am feeding. I have made the claim for years that my two-year-old heifers will give me more milk than the average cows.

Mr. Burnside: I wanted to ask you a moment ago if you wanted to feed any meal with your well-eared ensilage?

Mr. Gurler: No corn meal, no; balance up your ration with something like shorts or gluten meal. There is a feed you get, gluten feed, from the whisky distillery, that is good feed. The last I got the last part of the summer they had done something to, and it was not good. I wrote them and asked them what they had been doing to it, but if they knew they would not tell me. The cheapest protein I can get now I get from the glucose factory. It is the protein part of the corn. You understand they use the starch, and the protein, that proteid, that is a part of the kernel they can't use at all, and that will range about 33 per cent. protein.

Mr. Burnside: What is that worth?

Mr. Gurler: It costs me \$27.10 at Geneva.

Mr. Burnside: Did you ever feed any cotton-seed meal?

Mr. Gurler: I did several years ago. I would prefer a gluten meal. The cotton seed is high, but somehow I don't get much result from it. And now, by the way, there is that question of palatability, that is the first thing to be thought of in a food. I don't care how well balanced a food is, if the cows won't eat it how are you going to get any results?

Mr. Burnside: If you were feeding a silage and it would make forty or fifty bushels of ears to the acre, you wouldn't feed any corn meal?

Mr. Gurler: No, sir; I would mix that with shorts or gluten meal. Now I am feeding corn meal and gluten meal and making a ration of one to five and a half.

Mr. Burnside: Wouldn't it pay you better to plant your corn thinner and have full-eared silage, if you lived in a corn country?

Mr. Gurler: I don't know.

Mr. Helmer: That is my question. I have been cutting my silage out of my field corn; therefore I don't feed anything else.

Mr. Gurler: You don't have any ground feed?

Mr. Helmer: No, only occasionally a little bran.

Mr. Gurler: I make this assertion, if you would feed them some kind of a protein food like bran, wheat shorts or gluten meal, your cows will do better.

Mr. Burnside: I am feeding well-eared silage and cotton-seed meal. I have had some people tell me I had better have linseed meal.

Mr. Gurler: I don't think you had better. To illustrate that point: Once in a while we have gotten out of gluten meal, and every time we did

we had to increase the amount of bran or other grain or the cows would shrink on the milk right straight away when that gluten meal was gone.

Mr. Argo: At ten cents a gallon for milk, will it pay us to feed our sheaf oats, will it pay us to add bran at that price for milk?

Mr. Gurler: I think it would. You are not getting a balanced ration there. The oats are a balanced feed. By experiments they have found that oats are worth ten per cent. more than wheat bran.

Mr. Argo: I have found that it is impossible to increase the flow of milk to justify the present price of bran.

Mr. Gurler: Your oats are a balanced feed. Wheat and corn are away out of balance.

Mr. Burnside: You say the oats balance the ration?

Mr. Gurler: Yes, sir.

Mr. Burnside: At times men sell their oats and buy corn; do you mean threshed oats?

Mr. Gurler: Yes, I mean the grain.

Mr. Burnside: You say feeding silage and feeding sheaf oats. Of course, you live in an oat country. You know on the ordinary farm that you can raise oats and put them in the barn at a small cost. If you will take oats and go to the expense of threshing them, you have an expensive feed after they are threshed. Now, if you was advising—I want to ask pardon for asking so many questions, but when I start to this Dairy Association, I come here clear across the State of Indiana to question these men we have here, men that are at the head of the dairy business in the United States, and I made up my mind I was coming here and pump him dry if I could. I am a dairy man and I want to know all he knows, if I can get it.

Mr. Gurler: That is right.

Mr. Burnside: In the concentrated feed, they charge us the highest prices for bran. If we could raise oats and feed them in the sheaf in connection with silage, don't you think we can make our cows do the best?

Mr. Gurler: When you do that, you are short of protein, and I don't think it is possible for you to make a balanced ration out of corn and oats.

Mr. Connor: I understand you have begun growing alfalfa. I want an expression of your judgment on the value of alfalfa to balance with silage from an economic point of view. How can you make a balanced ration with silage in the point of economy?

Mr. Gurler: I will try to reach that point through somebody else's experience. I never fed any to amount to anything myself. Last October I was up to Mr. Dixon's, and he showed me over 130 tons of alfalfa that was grown on seventeen acres. He told me by feeding alfalfa hay with corn silage he had been able to cut his ground feed bill right in the middle, and keep his cows up to the limit.

Mr. Woods: What was that alfalfa worth a ton?

Mr. Gurler: It is not in the market. I have twelve acres on the farm now, and I am going to put out forty next summer. I am loaded up with more enthusiasm now for alfalfa than I have been for any crop on my farm. The work that has been done over in Illinois of inoculating the soil with bacteria that draws the nitrogen from the atmosphere, and if you will write to Champaign and tell them that you want their alfalfa books, this will give you an account of the experiments; but it seems that there is a special bacteria for the clover. About a year ago now there was a representative of our Experiment Station told me he did not believe we would make a success of growing alfalfa in Illinois, but now they imported from Kansas and Nebraska some soil from the alfalfa fields, and he inoculated the field with that breed of bacteria, and they grew eight tons and a half to the acre last year down there.

Mr. Young: Do you feed ground feed with bran and silage?

Mr. Gurler: Well, you could probably feed enough bran with silage to make it a pretty fairly balanced ration, but you could buy your nitrogenous or protein much cheaper than you can bran.

Mr. Young: Would it be cheaper to sell the wheat and buy the meal?

Mr. Gurler: Well, that is a new proposition.

Mr. Wood: What is your opinion of the soy-bean?

Mr. Gurler: I have grown a few of them for two years, but I don't know very much about them. I can't help you along this line. This paper that was read here, what was the statement he made about putting it in the silo or shredding it?

The Secretary: He made the statement that he could put the corn in the silo cheaper than he could shred it, and called attention to the fact that he had a shredder on his farm two months, and had never been able to use it but one day on account of the weather.

Mr. Gurler: I was going to say that I have figured practically the same thing, and I do believe that I can get it in the silo a little cheaper than I can shred it at the barn. After filling my silos this year I had some seventy-five acres of my own to put in the shock. Some of that was planted very late and wasn't shocked until October.

Now, I will touch upon the point of the milk. In my first work done testing the quality of milk, or rather it was a test of the butter, that was over twenty years ago, I had the milk in my dairy brought to my creamery and it was made into butter by itself and shipped to New York. Silage butter was first, and then butter made from dry feed. I numbered the tubs, and they did not know which was which, and when we got the report they did not see any difference in flavor; what difference there was was in the quantity. There was a small amount of silage butter in our churns and we did not get it worked and salted just right, and when I come to realizing what effect silage might have, I realized I must be careful, and all the first winter I did not ship any silage milk to Chicago as certified milk. But for several months I had samples of the milk at my house and on my table, so that I knew the silage milk and the dry food milk, and I had the two butters, and my wife and I had each on the table each morning, and we all passed judgment, and in the majority of the cases my wife and daughters picked out the silage butter and milk, and finally became convinced. When you use intelligence in the care, and making and feeding, you will have a first-class product, and if I wanted to make a high-flavored goods, I would insist on silage. Now, they can talk as much as they please; I have left myself wide open to be picked up by somebody, but nobody would do it. When I have offered to put up money on it they would let me alone. I will tell you, a person's imagination does a good deal on some things. I remember one time a doctor wrote me of the silage flavor to the milk when the cows were out on green grass pasture; and so I wrote him back the facts, gentlemen. I tell you, a person's imagination is a terrible thing.

Speaking of the shredded corn. I had some run in about a month ago and it came out soft and got a little tough, and I can't use that for my cows at all, and I am putting that out to my young stock and dry cows and mostly in bedding. My foreman called me up and wanted to use my shredded corn for bedding, but I told him, "No, you can't."

Now, we are down to the point of construction. I am going to tell you, going away back to 1876 when I built my first barn on my farm. I looked up the question of silo at that time, but all I could learn then was that they were built of masonry; but in a few years when they began to be built of wood, I built a wooden silo and sheeted it inside with one layer of match planks, white pine, that was first-class flooring. And then a few years later I built a double wall. I put on surface lumber, then a layer of paper, and sheeted matched lumber inside of that. That did very well for a few years, but the moisture went through those cracks from

the silage before the joints had swelled tight enough to prevent it, and in seven years decay had gone so far that I had to line that up with the paper inside. At the end of ten years I had to throw the whole thing out as worthless. I ought to have done it two years before I did. I lost enough silage to pay for it.

Mr. Drischel: Was that a square or round silo?

Mr. Gurler: It was a square; it did not make much difference. If I was going to build a wooden silo, I would not put a double wall inside. If you are going to build a silo, wooden silo, I mean, build a single wall and put good lumber in it.

Mr. Burnside: Do you remember the silos built by Prof. King, in Wisconsin? He had these wooden silos lined with galvanized iron. What do you think of that?

Mr. Gurler: I would expect it to last for a time, but how about the expense of it?

Mr. Burnside: Oh, it is expensive.

Mr. Gurler: My idea would be that you could not afford to do it. There is one point, I find. If your corn is too ripe, put water on it. Don't be afraid; there is not any danger. Be sure you have enough. If you don't you are in trouble.

Now, this question of construction. After I had that trouble with my silos rotting out, I put my head to work to get something that would not rot, and the outcome of it was I built three circular silos twenty feet in diameter and thirty-eight feet deep and cemented it inside with portland cement the same as you would cement cisterns, and I have used this. The first I built I am emptying for the sixth time, and I can't see but what they are just as perfect as they ever were. I had a man go inside a year ago and examine all around for small cracks, but I have had none of them, except one time when we did not have a top on it and the wind sprung it a little, but we took cement and cemented those places perfectly tight, and it has been all right ever since. I am confident I am right about that. I had made a section of that silo and I brought it along with me, and here it is. You could use the patent lath if you could spring it. I find I have to have a circle twenty-five feet in diameter or we can't spring it. You take half-inch lumber and then make a lath like that, edges beveled.

The Secretary: What is the width apart of your studding?

Mr. Gurler: I put them twelve inches; sixteen inches is all right for your studding to hold your material together, and then I had a lath made dovetailed out of that same material. Some people put on their sheeting and run their lath around. I don't think that is as good. It probably

costs a little less, but the cement probably did not reach all that space back of that, and you do not get as solid a wall. You get five-eighths of an inch cement where here you have practically an inch of cement, and it will stand a harder blow. That is all the advantage I can see in putting it on in that way.

Mr. Burnside: What is the width of these stringers?

Mr. Gurler: Those are an inch and a half; I would not have them more than two inches.

Mr. Burnside: Do you do any weatherboarding on the outside?

Mr. Gurler: No, it was new to me, and I wasn't sure about the resistance, and I looked it up and found what the pressure was at different depths, and I went to a civil engineer and told him to help me out. "Why," he says, "Gurler, if you could be sure of your cement cementing without cracking, it would resist that pressure." And then we went to figuring and we found we could get a resistance in wood cheaper than anything else. And now for the outside: I built one, and on the outside I put this same half-inch lumber. It needs to have a form of siding that will lay against your studding. I think if I was to put on weatherboarding now, I would get some strong board. If I could get elm strips and then weather-board up and down, putting siding on the outside.

Mr. Argo: You sheet outside round and round?

Mr. Gurler: Yes, that is where you get your strength.

Mr. Argo: And the outside with elm, or something, run up and down?

Mr. Gurler: Yes, board up and down. If you were going to board up and down, you would need something to nail your up-and-down boards to.

Dr. Woolen: Why not make a stave silo?

Mr. Gurler: Now, you are opening up where I want to go.

Mr. Wells: Do I understand that you put the thin sheet first and then the boards on top of that?

Mr. Gurler: Yes, and put your cement on top of that.

Mr. Wells: How do you paint those?

Mr. Gurler: They will paint easy.

Mr. Argo: I understand you to say that was an inch plank?

Mr. Gurler: No, that is made of two half-inch pieces.

Mr. Wells: This piece that you have is two pieces (referring to the sample exhibited)?

Mr. Gurler: Yes.

The Secretary: You dress the lumber for them?

Mr. Gurler: No, I had this dressed. I didn't tell the man to dress it.

Mr. Wells: The idea was whether you put on these seven-eighths pieces as a whole?

Mr. Gurler: No, that is two parts; that is all there is to it. Now, in regard to the construction of silos, this question of how you shall build a silo I have discussed with a lot of the dairy leaders. Professor Glover, who is doing work for the Illinois Experiment Station, has had the personal oversight of the building of three silos. I was around and helped and watched. There was one built of 2x4 put up edgeways. He put up one and then put up another and spiked it edgeways and then he put on hooks. Well, there was one built near Elgin last year that cost \$282 and held 130 tons, and then there were two silos built up in that vicinity the way my silo was built and cost \$299 and held 183 tons. That cost per ton was \$1.63. Now this silo built as I built mine has a roof on it and is sheeted on the outside, and this silo is fast on a concrete foundation and it holds 183 tons and it cost \$1.63 per ton. He gives the figures on another one that cost \$260 and holds 200 tons, but it is not sheeted on the outside.

The Secretary: That one that you say holds 183 tons was built on the same plan as yours?

Mr. Gurler: Yes, and all complete and roofed and weatherboarded. Now, let me give you a basis on which to figure. This is the way to get at the cost of building a silo. It depends on the diameter. Take two silos, say one twenty feet in diameter and one forty feet in diameter. It is twice as far around the forty, but it will only cost a quarter as much more. It is hard to tell what it will cost to build a silo unless you figure up the surface of it. I built a silo several years ago and had it weatherboarded that cost me 12½ cents a square foot of surface. To illustrate that: Say twenty feet in diameter, that would be about sixty-three feet around it, and if it was twenty-three feet high that would be 1,260 surface feet, and 12½ cents per square foot, that would be one-eighth of 1,260, which would be practically between \$175 and \$180. That would give you practically the cost of building a silo. If you will figure it about 12½ cents a surface foot you will have it about right.

Mr. Wood: Is it well for the silage to have it without a roof?

Mr. Gurler: It is better most of the time. This completed silo costing \$1.63 per ton cost $10\frac{1}{4}$ cents for each foot of surface. If you will get in touch with Mr. Glover, at Elgin, he can tell you all about it. If I am positive about anything, I am positive if you build a silo you ought to cement it inside.

Mr. Drischel: What do you consider a standard size silo?

Mr. Gurler: Now, I am glad you brought that out. You must have your silo to feed the number of cattle you want to feed, and you generally need six surface feet to each animal you wish to feed. I have one silo thirty-eight feet in diameter, and when I open that silo up, I plan to feed my whole herd out of that. I was making some 1,800 pounds of milk a day, and they were having some trouble with their butter, and they called my attention to it and I went out to the farm and found out they were feeding decayed silage. Six surface feet per animal is a safe working plan to work on. If you have a silo twenty feet in diameter, that is practically 300 feet, and you can feed fifty cows safely from a silo that is twenty feet in diameter.

Mr. Shugart: In building a silo, can you go below the surface of the earth?

Mr. Gurler: It is all right if you can get drainage.

Mr. Shugart: What is your experience with the depth of a silo?

Mr. Gurler: The deeper the better.

The Secretary: How high is it profitable to try to elevate it above thirty feet?

Mr. Gurler: I have a sixty-foot elevator.

Mr. Shugart: Did you ever try a blower?

Mr. Gurler: No, sir; I don't know anything about it; I never used it.

Mr. Burnside: How thick do you put your cement?

Mr. Gurler: On an average of five-eighths of an inch; and that makes me think of another thing. Be sure of your cement; don't put in cheap stuff, and be sure that your sand is clean, using two parts of sand and one part of the best cement you can buy, and you are all right.

Dr. Woolen: Is your object in cementing to prevent rotting?

Mr. Gurler: The object of the cement is to preserve the silage and preserve the wood.

Dr. Woolen: In building a silo after your pattern, if you were building one for summer feed, would you put a roof on?

Mr. Gurler: No. All the advantage I can see of a roof would be to prevent and throw off snow that might fall when you are feeding. I don't think the water is any damage. It is an advantage up to the time you come to feed out of it. I have one without a roof that I filled, I think this is the fifth time, and I tell you it is a mighty fine thing to have a roof.

Mr. Burnside: Is it connected with your barn?

Mr. Gurler: No.

Mr. Burnside: If your silo was connected with your barn, would you want a roof on it?

Mr. Gurler: Well, my silos are shut off from my cow stables. They are under the same roof, but they are partitioned off, so that the cows get none of the odors from the silos.

Mr. Burnside: Let me ask you why it is that rye in a silo will taint the milk?

Mr. Gurler: I can't answer that, but I know there are odors floating around. I know one time I was training a class, and one of the students detected the odor of the hogpen in the milk, and we ran that down and found where the milk came from, and we asked that man where his hogpen was, and it was fifty feet away. I mention that to show you how carefully we ought to guard these things.

Mr. Fairfield: I want to ask Mr. Gurler if he has any trouble with silage freezing?

Mr. Gurler: It does freeze sometimes. It won't damage as long as it is frozen, and then when it drops down we mix it up with some other silage, and we don't know the difference, and the cows don't know the difference.

Mr. Fairfield: Can you explain about frosted corn?

Mr. Gurler: If it gets frosted, I will put it in as rapidly as possible. If it gets frosted, put on plenty of water.

The Secretary: How do you put on the water?

Mr. Gurler: Sprinkle it on at the base of your elevator. I have a hose I can run up and put in a half-inch gas pipe and run it along the base of the elevator and have a lot of little holes drilled in that so that it will spray all the time as it is going up the elevator.

Mr. Dowd: In buying feed, would you buy gluten feed or gluten meal?

Mr. Gurler: Gluten feed. It would cost you more per pound of protein for the gluten meal.

Mr. Dowd: What percentage of protein does it contain, if you know?

Mr. Gurler: Twenty-five per cent. Now, the cheapest protein feed was the byproduct from this whisky plant at Peoria. I buy protein there, figuring the whole food on the protein at less than 4 cents a pound; about 3 7-10 cents.

Mr. Wood: What is that food called, gluten meal?

Mr. Gurler: No, they have a name for it.

The Secretary: I move you appoint the committee on resolutions.

Motion carried.

EVENING SESSION.

Wednesday, January 21, 1903, 7:30 p. m.

The President: The first will be a violin solo, by Miss Ross.

Solo. Continued applause.

The President: I guess we would be imposing on the young lady to ask her to play further. We certainly ought to be satisfied with as fine a piece of music as that. We will go on with our program.

CREAM RIPENING IN THE FARM DAIRY.

M. L. FISHER, LAFAYETTE.

Prof. H. H. Wing, in his book on "Milk and Its Products," says that "by the ripening process is meant all the treatment which the cream receives from the time it is separated from the milk until it is put into the churn." Assuming this definition as a text, I shall attempt to tell how cream is ripened at the University Farm Dairy. This method, however, is not peculiar to the University dairy, but is, I think, applicable to any farm dairy.

After separation, the cream is cooled at once. This is done by setting the can containing the warm cream in cold water for a short time. After being cooled somewhat, the cream is removed to the refrigerator. Warm cream is never mixed with cold cream, as an important thing to be remembered is to have as few changes as possible in the temperature of the cream after it is once cooled. It has been found that butter made from cream which has had the minimum changes in temperature will "stand up" better in warm weather than butter made from cream whose temperature has suffered several changes. Having cooled the cream, it is kept in cans in the cooler until enough is collected for a churning.

Now comes the ripening process proper. If the cream has kept perfectly sweet (and it should for at least three or four days even in summer if proper care has been taken in the way of cleanliness), it is warmed up to the desired temperature and set to ripen in a ripening vat. What this desired temperature is is open to differences of opinion. I consider between 60 to 65 degrees Fahr. to be about right for the summer season. I have found that cream ripened at this temperature made butter of a better flavor than cream ripened at 80 degrees. It is asserted by some writers that there are other bacteria besides the lactic acid forming ones, which aid in determining the flavor of butter, and that these bacteria flourish best at a comparatively low temperature. The time required to ripen cream at this low temperature is from nine to ten hours. After the cream has ripened sufficiently it is removed from the ripener and placed in cold water to cool for churning. I prefer to set the cream to ripen in the evening, allow it to ripen during the night, draw off in the morning, cool for at least two hours and then churn. If one desires to churn early in the morning the cream may be set to ripen the previous morning, removed in the evening and kept in cool water all night, but in this case the cream must be removed from the vat before it is fully ripe, or else it will become overripe during the night.

The ripeness for drawing off is usually determined by the taste and odor of the cream. This, however, is not an accurate test, and I prefer using the Farrington test. If no alkali test is used, a very slight deposit of casein on the bottom of the vat will indicate a proper degree of sourness. If the alkali test is used an acidity of .7 per cent. is about right if the cream is to be churned as soon as cooled; if it is to stand over night an acidity of $.5\frac{1}{2}$ to .6 per cent. is about right.

As to whether ripening at a low temperature has any effect upon the churning qualities of the cream, I will say that so far as my observations and records go, ripening at a low temperature seems to have an advantage over ripening at a high temperature. In a series of thirty churnings, fifteen ripened at a high temperature required an average of 53 minutes for forming butter granules, while fifteen ripened at a low temperature required 47 minutes. The greatest advantage seems to come from the

saving of butter fat in the buttermilk, as 13 churnings ripened at a high temperature gave an average of .87 per cent. of butter fat in the buttermilk, while the 15 ripened at a low temperature gave an average of .40 per cent. of butter fat in the buttermilk. I noticed, also, that the butter granules from the cream ripened at a low temperature were firmer and washed freer from buttermilk.

As to starters, I seldom use starters in warm weather, but believe they are the proper thing in cold weather. I have used skim-milk starters and buttermilk starters, and I prefer the skim-milk starter. Even in the summer season with the greatest care in milking and straining there will usually be sufficient bacteria in the cream to produce ripeness in a reasonable time.

In brief, then, the process is to cool the cream as soon as separated to a temperature of about 48 degrees Fahr. and keep at this temperature until ready to ripen, then ripen at between 60 to 65 degrees and cool to temperature desired for churning, and churn.

The President: Who will be the first now to ask a question. We want him to tell why such and such is the case. Some of you butter makers get after him.

Mr Slater: I would like to ask the gentleman if he would not change the temperature as little as possible, and would like to ask him why he cools his cream as soon as he separates it?

Mr. Fisher: I would not change the temperature any oftener than necessary, from the fact that the butter globules will hold their firmness longer. Changing the temperature a good many times the granules are apt to be broken down, and I think the butter would not hold up so well. As for cooling the cream as separated, I think that is the thing to do, as it removes the animal heat from the milk and leaves it in a condition so that the bacteria in there that are not desired will not get in their work.

The Secretary: I may say that Mr. Fisher is a senior student in the University, and the basis of his work that he has presented here was some observations he made this summer during my absence. I asked him to give them to you. The question of ripening the cream before it is cool is one that is comparatively new. It is only within the last two years it has been generally advocated for creamery practice and has not been much used in farm butter making.

Mr. Dowd: We had read to cool the cream down as soon as we could after separating, and we tried setting the cream in the snow and stirring it, but we cooled it too quick.

A Voice: Does it make the best butter to have the cream at a high temperature, or low?

Mr. Dowd: We did not keep it long enough, but I think it would be better at a high temperature than low.

The Secretary: Mr. Slater can answer that.

Mr. Slater: Some of us butter makers were called on to furnish butter for the Paris Exposition; there were six of us. We used nothing but morning's milk for these exhibits. Just separated it at a temperature of about 65 degrees; we lost some in skimming; but our idea was to get a butter that would last for a long period. We put the cream in our vats and ripened it at a temperature of 64 degrees, and we had our starters at 64 degrees. We did the same with our cream and the very low starter. We used about 42 cubic centimeters of the alkaline solution, which would amount to about 56-100 of one per cent. of acid, and from the fact that we took in the milk in the morning we had the butter in the tub at 3 o'clock in the afternoon, and that butter was scored in New York city and scored 94, and scored 96 in three weeks, and so that taught us that cream with very little starter and that was ripened quick at a low temperature would mature its flavor and hold its flavor. I believe in ripening cream at about 65 degrees and ripen it as soon as possible and get it in the tub as soon as possible.

Mr. Gates: I would like to ask how to make a skim-milk starter?

Mr. Fisher: Skim-milk starter is made by taking some of the skim from a fresh cow. If you have one that is fresh, use that, and putting it into a fruit jar or anything else that will hold as much as you want, stopping it up tight, have that skim milk about 95 degrees. Set in a room where it will not go below 75 or 80 degrees, and keep it at that temperature until it becomes well clabbered, like a nice thick jelly, and it is then ready for use.

Mr. Hill: Didn't you say you preferred skim-milk starters to buttermilk?

Mr. Fisher: Yes, sir.

The Secretary: Why?

Mr. Fisher: Simply because buttermilk starters are liable to have a flavor you do not want. The buttermilk starter is apt to be more acid and will probably gather up some flavor from the room.

The President: The next paper is,

DAIRYING FOR THE FARMER'S DAUGHTER.

MISS EDITH PARSONS, CLAYTON, STUDENT IN WINTER COURSE PURDUE
UNIVERSITY, CLASS 1900.

Four years ago I left my country home with my brother to enter the winter course at Purdue University. Will it disappoint my professors at Purdue to know that I was actuated by no higher motive than the charm of getting away from home? Looking back to the farm little did I then realize that after returning home I would take up a profession that I had before detested, that of working in a dairy.

Our professor pointed out to us the great field devoid of workers and the many possibilities that were in store for any energetic young man or woman who would devote their time, or part of it, to the dairy industry.

We returned home not discouraged with the dairy work, but enthused with the idea, that with our parents back of us financially we would build up a larger dairy and make it a butter dairy.

Our first and main difficulty has been that of increasing our dairy herd. In order to increase the herd more rapidly we bought cows that were said to be good cows, and sure enough they were good milk cows, but not at all profitable to keep as butter cows, so we were compelled to sell them at a great loss, and we finally discovered that people who own good butter cows will not sell them. We feel that we are now overcoming this great difficulty by raising our own cows.

After you decide to begin dairying the question arises, who shall care for the milk and make the butter? Shall it be the farmer and his sons who toil in the field all day, or shall it be the tired mother and wife, who shall do this work, thinking it one of her many duties, instead of a source of pleasure to her? No! In my opinion it should be the farmer's daughter who should come forward and say, "I am young and know that I would enjoy taking full charge of the dairy work. How proud I will feel to think that I am making gilt edge butter."

Many mothers persist in saying that the work in a dairy is too hard for their daughters and would soon become a drudgery to them, but I believe mothers of this opinion forget that any work, no matter how hard, if entered into with the soul and willing hands, ceases to be drudgery and becomes an art.

It is a girl's nature to love admiration, and what is more admired in a girl than thoughtfulness, willingness, cleanliness and the rapidity with which she works. All of these elements are a necessity to a person working in the dairy and can easily be acquired by practice.

If more girls would work in a dairy or would do some work that would give them more exercise in the open air, I am quite sure their health would

be improved and the demand for face powders and paints would be largely decreased, for we know that Mother Nature is willing to do all she can to add to our happiness and to our general appearances.

Why, then, do so many girls leave the farm and go to the city to engage in some shop work or work that requires all of their time during the day and often part of the night?

I fully believe it is because their eyes have not been opened to the true wealth of the farm or the many advantages the girl on the farm has over the shop girls.

'Tis true that the girl on the farm arises early, but if she is engaged in the dairy business her morning's work is completed by 9 o'clock, then she has from 9 o'clock until 4 o'clock in the afternoon to devote to the other arts, such as the culinary art, sewing, music or fancy work, and then when her evening's work is completed, which is usually about 6 o'clock, she has several hours to devote to reading or any way she wishes. Should life under these circumstances be dull or uninteresting?

But the shop girl's life is very different. She works from 7 o'clock a. m. to 6 o'clock p. m., and often later, and then she feels too exhausted to even care for music or reading; the rosy color soon leaves her cheeks and her general health becomes impaired and we so often hear them wishing for a few days on the farm, where they may get pure air, good country food and plenty of Jersey cream and butter. It is then that we take pleasure in supplying our city sisters with our dairy products, which they so highly appreciate.

Many people would scorn the idea of calling the general farmer's daughter an artist, but I think it can truthfully be said that the girl who, by her own cleanliness and willing hands, can make first-class gilt edge butter, can indeed be called an artist.

The dark side to dairying for the farmer's daughter is that it is an every day business that can not be put into inexperienced hands, without getting things out of balance, and that whole days off must be few.

But a girl who has tact and judgment enough to get the best results from a Jersey cow is well qualified to win by persuasive measure any favor she may covet.

So I would say to the farmer's daughters, stick to the farm, take up some profession that can be practiced on the farm, whether it be dairying or poultry raising, don't for a single moment let the tempter have possession of you, but think of your health and of those little gold mines on the farm, and remember that with health comes happiness and with happiness wealth.

The President: We ought to have some nice compliments paid to that paper, and we want to hear from you, gentlemen.

Mr. Drischel: Mr. President: The young lady presenting a paper of that kind and being through the school of Purdue University and being a

member of the State Association for several years past, I think it prudent on the part of the dairy industry of this State to issue that in pamphlet form and let each one of us issue it to our patrons, and also to every person that has any interest in this matter, and I think it is policy on the part of this Association or Purdue University to issue a pamphlet on this subject.

The Secretary: Mr. Chairman, I may say I visited the dairy farm where Miss Parsons is at work, and I know that everything is in nice shape down there, and that they have increased their herd from two or three cows at the time she went home from the school to some twelve or fourteen, and they have more calls for butter of the grade they make than they can supply, and at a higher price than is paid for dairy butter.

The President: Perhaps it would not be out of place to ask Miss Parsons to give some idea as to how she handles her cream; we would like to hear from her.

Miss Parsons: Well, our cream is handled much in the same way that Mr. Fisher said he handled his cream. We usually put our cream to ripen the morning previous and then we churn the next morning early.

Mr. Dowd: At what temperature do you churn?

Miss Parsons: We usually churn at about 58 or 60 degrees. I think we have more butter at 58 degrees, but it takes longer to come, about 35 minutes.

The President: The next will be a violin solo, by Miss Ross.

Mr. Argo: There is one question I would like to ask the gentleman, and that is, taking the cattle from that shed into the milking department, will we have some kind of feed in there to toll the cow?

Dr. Bitting: I would always have some kind of feed for the cow when I milked her.

Dr. Woolen: We haven't had many special papers here today; they have been more in the form of questions, but this last paper is of such a nature I feel there ought to be a personal indorsement of it. We can talk as much as we please about our notions about dairying and about the kind of cattle that we will have and about all these other things, but if we do not adhere to what the doctor has told us more or less closely, our work has been in vain. I think that the audience will pardon me if I announce

that I am a doctor, and I might speak a little more clearly from that standpoint, but I will say that I am also a dairyman. I have received a great deal of benefit from what the doctor has said. I have seen the ill-effects of not conforming to what the doctor has said. I know what it was twenty-five years ago. I practiced medicine twenty-three years in Indianapolis before I went into special work, and the horror, the perfect horror that we physicians would have when the hot weather would come. Formerly one-fifth of the human family died in infancy, and the doctor knows very well that summer complaint, not spring complaint or fall complaint or winter complaint, but summer complaint, heads the list. It was a terrible thing to see these little things go in the way they did.

I want to call attention to one thing, and that is the shed the doctor has shown. I keep, to some extent, a shed as you have seen. I vary to some extent in that I do not keep my cattle in the shed all the year. That is the only objection we could have to the shed where the cattle were kept all the year. I can't help but believe that when the weather is fit, six months of the year, and possibly seven or eight months, cattle do well to have a good deal of outdoor exposure, or the kind of exercise that cattle take. Milk cows do not take exercise only sufficient to get their rations. You feed cows all they want, and they will travel but little. They will eat, lie down and take the world easy until they want their food, and so dairy cattle do not want the same amount of exercise as other animals. I do not have the cattle in the milking room only during the time of milking. They know what is on hand at the milking time, and every cow is at her place and is milked and treated kindly. That is a thing I have been impressed with more of late than ever before. Usually we take the calf away from the cow at once, and her maternal instincts are not expended on her calf. The milker should take the calf's place, and if she is treated kindly, and that milker is a humane person, that cow will have a very great affection for that milker.

Mr. Woods: I would like to ask the doctor if he thinks that tuberculosis can be communicated to the human family from the bovine?

Dr. Bitting: I think it can to a certain extent.

Mr. Woods: I would like to ask the gentleman, in taking the calf from the mother, did he give the milk of the mother to the calf? I always considered it very necessary for the calf to have that milk.

Dr. Woolen: The first twenty-four hours, and then we feed skim milk. The skim milk is always warmed to what we would almost call hot. Milk, as Dr. Bitting knows very well, comes from the animal at almost blood temperature, and I heat the milk to about that temperature.

The President: I will appoint the committees now that we desire to have report tomorrow evening.

Committee on Resolutions composed of Dr. Woolen, Samuel Schlosser and Mr. Drischel.

Committee on Nominations is Sam B. Woods, Charles Lamont and Henry Schlosser.

Committee on Essays, Mr. Gurler, Mr. Robbins and Mr. Holloway.

Adjourned until 9:00 o'clock a. m. tomorrow.

THURSDAY MORNING SESSION.

January 22, 1903, 9:00 o'clock.

The President: We will have music now by the Purdue Glee Club.

Music by the club.

The President: We certainly ought to be pleased with such elegant music. The boys show the spirit of the boy in their singing and in their action, and they show the college life, and I am glad to see them enjoying college life.

We hope to have a profitable day in our meeting, and we hope to have every one feel at home and ask a question or say a word on any subject that is being discussed. If Mr. Martin is present, we will hear his paper.

HOW I RIPEN CREAM IN THE CREAMERY.

EARL MARTIN, NEW CARLISLE.

Ladies and Gentlemen: I start in to ripen at the time I take the milk into the factory. In taking milk in at the factory we all know we have lots to contend with. There is milk coming in in all conditions, and as our factory facilities are small, we hate to refuse a man's milk, but sometimes we should do so. It is to their benefit and also to the benefit of the creamery. I attend to the weighing myself, and am very careful in taking in the milk. I heat the milk to 75 or 80 degrees, and I cool the cream immediately down to 60 or 65 degrees. Then the cream is let set. I stir it

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quite often during the process of separation, and when I am through it has started very little. I have my cream 65 degrees, or thereabouts, and then I let the cream set, and it takes from three to eight hours to ripen, the time being governed by the weather. Of course, one way that I have to tell when the cream is sufficiently ripened is from the test. When I get it to where I think is correct, I cool down, generally in the evening all the way from 5 o'clock sometimes as late as 8 o'clock. I cool the cream down in summer to 52 degrees and about 54 in winter. One thing I have noticed in ripening cream: we sometimes splash it up on the bucket; it dries on and you go to work and stir that off into the cream, and a good many times you receive mottles, the same as though not ripening cream enough. For instance, we get through separating at noon and do not stir our cream any more until night. The cream on top will dry and it is not thoroughly mixed, the top is hot. The bacteria grows there fast, and the bottom is cool, and that is why I think it should be stirred real often during the ripening process.

I would like very much to go on and state the ripening process with starters, cultures and with acid test to determine when you have the proper ripening, but I know nothing about that. Mr. Van Norman told me he expected to have a class here this spring of butter makers or anybody that wants to take cultures and cream ripening, and I am one of the boys. I am going to take it, and thereafter I think I can tell you more about cream ripening. I think my method is out of date. I have had perfect success for seven years, but at the same time I think I am in the hind rank.

Mr. Gurler: You are going to stick to your present method until you think you have a better one?

Mr. Martin: Yes, sir.

Mr. Gurler: You speak of the dried cream causing mottles; can you think of other causes of mottled butter?

Mr. Martin: Yes, sir.

Mr. Gurler: What other causes?

Mr. Martin: Well, you can get mottles first by separating cream very thin. There you will have a great amount of milk. Your milk curdles and your cream raises to the top the next morning, and when you go to churn you have curd in the bottom of your tank that goes into your cream and you have mottled butter.

Mr. Gurler: My experience with the dry cream mottle is that after the butter has stood three or four days it will change in color from the surrounding butter, and it don't show when it gets a little age as it does when it is new.

Mr. Dowd: Are there some mottles caused from salt?

Mr. Martin: It will cause streaks.

Mr. Gurler: That is unequal distribution. I have had that same result when my cream was churned and the salt was not distributed. There would be specks that would not take the color.

Mr. Martin: Yes, sir, and at the same time unequal working.

Mr. Dowd: How do you salt your butter, in the churn?

Mr. Martin: Yes, sir, in the churn.

Mr. Argo: How much salt do you use?

Mr. Martin: An ounce and a quarter.

Mr. Dowd: Do you weigh your butter?

Mr. Martin: You can tell within five pounds by the amount of milk you have the amount of butter you have in the churn.

Dr. Woolen: You speak of taking color. Do you mean taking on or absorbing color?

Mr. Gurler: Yes, sir; we hardly ever use any color whatever up until May, possibly July.

Mr. Dowd: All the up-to-date butter makers use color?

Mr. Martin: Yes, sir, I think there are hardly any that do not.

Mr. Gurler: Especially creamery butter?

Mr. Martin: Yes, sir.

Mr. Dowd: And when you don't you will find white butter?

Mr. Martin: Yes, sir. There is a butter put on the market in Chicago for the Jew trade, and that is uncolored.

Mr. Hill: What time of day do you prefer churning, morning or evening?

Mr. Martin: In the morning.

Mr. Gurler: And the temperature of churning?

Mr. Martin: I vary. In the winter it depends on the churn. This time of year, I wash in cool water. Your churn in the creamery this time of year will be down to 36 or 38 degrees, that will cool cream down considerable. In the summer time I churn cream at 56. Now I am churning at 58.

Mr. Gurler: What per cent. of fat is in this cream?

Mr. Martin: The way I am separating now contains 25 per cent.

Mr. Gurler: You can't churn that cream at much lower temperature than that.

Mr. Martin: No, of course by the time you put your cream in the churn in the summer time and by the time you draw your buttermilk off, it is up to 58 or 60.

Mr. Gurler: Do you think it is desirable to churn at a low temperature?

Mr. Martin: Yes, I do; I prefer it.

Mr. Gurler: Tell us why.

Mr. Martin: You take in the warm summer and put your cream into the churn, especially the thin cream, and churn it 60 degrees, and by the time you have it churned it is up to 64.

Mr. Gurler: What does the Babcock test tell you about butter making at a high or low temperature?

Mr. Martin: That is something I haven't tested.

Mr. Gurler: I am going to tell you of a little experience along that line. I studied a long while to find out how to churn at a low temperature. I discovered that when I would churn at a low temperature I found less fat in my buttermilk. When I churn at 60, I will find more fat. When I say that temperature, I mean that temperature in which the buttermilk runs out of the churn.

Mr. Dowd: I have a full-blooded Jersey, and I have read agricultural papers on butter making and tried about 58 to 60, and it takes a long time to get butter. We churn at 65 and we can get more butter and get it quicker and the butter is yellow.

Mr. Gurler: How do you get your cream?

Mr. Dowd: We have a separator.

Mr. Gurler: What per cent. of fat is in the cream when you churn it?

Mr. Dowd: I don't know as I can tell that.

Mr. Gurler: Yours is Jersey cream?

Mr. Dowd: Yes, sir.

Mr. Gurler: Now, this gentleman is talking about Jersey cream and Jersey cream is different from any other cream. He is running a private dairy, but this gentleman is talking from a creamery standpoint that has all kinds of milk and cream and the conditions are different, which must be taken into consideration.

Mr. Newby: What temperature do you want to churn at?

Mr. Gurler: We churn from 48 to 52. Now, I am speaking from a creameryman's standpoint; I can't get myself into this man's shoes, because I haven't a Jersey dairy, and I realize it makes a great difference.

Mr. Newby: I used to churn my cream at 48. The patrons, a great many of them have Holstein and Shorthorn cows, and they got rid of nearly all the Holstein and now have Jerseys, and if I churn below 58 I do not get as good results as I did at 48.

Mr. Gurler: That illustrates the point that we must not jump at conclusions.

Mr. Newby: Every man has to test his temperature himself.

Mr. Gurler: Yes, make his own rule.

Mr. Dowd: We tried churning for a long time at a low temperature, but it took so long to do the churning. We churn in less time now, and we used to spend two hours at 58 to 60 degrees.

Mr. Newby: There is another point. You said you made more butter. Here is a point I had in my mind, that the higher the temperature at which the butter comes, I think the more water it will carry. You will find that that butter will not show so high a percentage of fat as butter that is churned at a low temperature. I think that you can get butter too dry. I have seen butter that had so high a percentage of fat that it did not taste good; it was mussy.

Mr. Dowd: Wasn't that on account of working too much?

Mr. Newby: Sometimes that is true.

Mr. Slater: Don't you think that butter churned at a low temperature contains more moisture than at a high temperature? It will retain more salt?

Mr. Newby: You were speaking of 58 to 60. I would claim that butter churned at 50 degrees contained more moisture than at 60.

Mr. Gurler: Which would contain the most fat?

Mr. Slater: The butter churned at a low temperature would contain the most fat, because there would not be so much buttermilk.

Mr. Gurler: He says it did not contain so much moisture, but then gives more buttermilk, and when it comes to the percentage of fat, there is more fat.

Mr. Slater: I meant to say, churned at 50 degrees there is less loss than at 60. The only thing we claim is that butter churned at a lower temperature contains more water.

Mr. LaFuze: Does water hurt the quality of the butter?

Mr. Gurler: Yes; if you put water in the butter it hurts it. To illustrate, I will tell you a little of my experience 30 years ago. I one time had a break down when I had just got done churning, and I drew the buttermilk out. I wasn't fixed to control the temperature of my room, and I filled my churn up with cold water, and when I got that butter into the tub, I discovered there was something wrong there. You can wash the flavor all out of the butter.

Mr. Follette: This man spoke awhile ago about the Jersey cream churning at 65 degrees. Last summer we had Jerseys and we churned Jersey cream a great deal higher than the Holstein cream.

Mr. Gurler: That is right. How much fat did you have?

Mr. Follette: Fifty per cent.

Mr. Gurler: You didn't get much buttermilk?

Mr. Follette: No, sir, I tested every day with the Babcock test.

Mr. Schlosser: I would like to ask how you test?

Mr. Follette: I test the skim milk every day, and I find only a few drops in the test bottle.

Mr. Newby: I would like to ask Mr. Martin if you have any trouble to get your cream ripened without a starter?

Mr. Martin: Yes, sir; I have a starter, but I need a stopper.

Mr. Gurler: The idea is to stop the development of the starter when you get it where you want it.

Mr. Follette: I attended a butter maker's school, and they managed to have the cream ripened by 4 o'clock in the afternoon with a commercial starter. They generally carried four or five starters and selected the best and used the Farrington alkali test; churned about 41.

Mr. Dowd: What do you think about washing the butter?

Mr. Martin: I have heard of some washing butter twice, but I do not.

Mr. LaFuze: Do you have any mottled butter?

Mr. Martin: I haven't had any mottled butter lately.

Mr. Gurler: I think of one more point. At a low temperature for churning your butter requires less wash water. That is one point of an advantage in churning at a low temperature.

Mr. Dowd: Do you find it necessary to work your butter much?

Mr. Martin: I do not salt with dry salt. Aim to get the salt on the butter and then revolve the churn two or three times and let it stand about fifteen minutes, and then I work it once. The butter passes through the rolls twice, and then I stop it and let it drain. It depends on the temperature of the butter how long I let it stand there. Where you work your butter, and it contains a large amount of moisture, if you let it stand it gives the salt a chance to dissolve.

Mr. Dowd: That is necessary in working butter to get the salt even and the moisture out?

Mr. Martin: Yes, sir, and not overwork it.

Mr. Dowd: I don't think it is necessary to work your butter hardly any if you handle it right.

Mr. Newby: Which will keep the longest, washed or unwashed butter?

Mr. Martin: I could not say as to that, but I would say the washed butter.

Mr. Gurler: I agree with you on that.

The Secretary: A good many of our people know of Professor McKay, who is head of the dairy school of the Iowa Agricultural College. Of all the college men, I think Professor McKay ranks first among the instructors as a judge of commercial butter, so anything he may say as to what goes to make butter of the kind and quality that the market wants, will be worthy of our serious consideration, because Professor McKay is authority on this subject. He has been one of the experts at the national contest this year, and his comments are regarded as among the best.

THE BUTTER MAKERS' PROFESSION.

PROFESSOR G. L. M'KAY, IOWA AGRICULTURAL COLLEGE, AMES, IOWA.

Mr. Chairman, Ladies and Gentlemen: It has been my good fortune, or bad fortune, to visit most of the Western conventions during the past year, and I participated a great deal in the scoring. What I want to urge today is the necessity for every butter maker doing a little better. There is an opinion among butter makers and among other people that somebody is away up high; that somebody is an expert. I want to convey the idea that everybody has a chance to be expert in butter making.

Within recent years many changes have taken place in butter making. It was formerly supposed that most any one who was neat and tidy could make good butter. Since investigations have been pursued along scientific lines, we find that it requires skilled labor.

The men who are pursuing dairying at our school now are possibly 25 per cent. in advance both in education and skill of the students who took dairy work seven or eight years ago. As we look the country over, we find the people who have become famous in the dairy world are men of unusual intelligence, who would undoubtedly have made a success in most any other line of business. I like self esteem in a young man. I like to see the young man with the "git there" spirit in him, no matter what line of work he is pursuing. I believe every young man has enough natural ability to acquire an education, providing he has the will power to assert himself. It is the lack of self conceit that keeps a man from rising to the level that it is possible for him to attain. We complain frequently about people being egotistical. I admire a certain amount of this quality in any person. This is an age of combinations and concentration of capital. It

is also an age of specialists. The general purpose man must necessarily fall to the rear. Every man should be educated along some line of business. While I am a strong believer in adaptability, I can not think that a man who has made a success as a specialist would have been a failure in some other business, if he had applied the same energy and thought to it. Success in any business never comes by chance or luck. Chauncey Depew, being asked by a young man to give the secret of success, replied: "My boy, there is no secret to it. It is just dig, dig, dig." Edison, being asked to give the definition of genius, answered: "Two per cent. is genius, 98 per cent. is hard work." On another occasion when this great inventor was asked if he did not believe that genius was simply inspiration, he replied: "No, genius is perspiration." The editor of a western newspaper sent to all the successful men in his city this question: "Why is it that not more of our young men succeed?" And one answer came back in this laconic phrase: "Because too many of them are looking for white shirt jobs." Possibly this was a homely way of saying it, but it is true in many cases, especially with many of our college graduates. Some imagine because they have a college education they must necessarily get an easy, high-salaried position. It is well to have a technical education, but it is also well to have a manual training. Lord Bacon used to say, "Learning should be made subservient to action. We need a knowledge more of how to do things than how to explain things." The world today is looking for men and women who can turn out the finished product. The time we hope is past when it will be considered a disgrace for a man or a woman to work with their hands. No man would be so irreverent as to say "that the man Christ was lacking in brain power or manliness," yet we find him a carpenter, toiling with his hands. Study the lives of all successful men and the story will be found in each case exactly the same. The methods varying as they must but the actual basis of every successful life is the persistent, hard, hard work of years and many a personal sacrifice. This is not always apparent, simply because we are all apt to look at a man when he has achieved his success, but there was a struggling period, nevertheless. Thoroughness in everything is the key-note of success. As Mr. Bok, the distinguished editor of the *Ladies Home Journal* says, "A thorough workman never says 'there, that will do,' but 'there, that's it,'" and this is what every young man in business should learn—that absolutely nothing is good enough if it can be made better. And better is never good enough if it can be made best. We frequently hear men complain that there is no use in doing extra work, that their employers do not appreciate it. They work merely like an automatic machine, with no interest or heart in their work. As a rule, the fault is more often with the employed than with the employer. There are exceptions to this, as to any rule, but as a general thing a man gets paid about what he is worth. The man who most loudly complains of being underpaid is frequently the man who is overpaid. I find it much more difficult to get men

to fill the best positions than it is to get men for the ordinary positions. A. T. Stewart used to say that he always had plenty of vacancies in his store which he could not fill, although he wanted to, for ten-thousand-dollar employes. The same condition exists today in many other branches. Let an important position open up in any branch of business and it is very difficult to find a competent man to fill it. A universal precept and rule of success which, spoken long before universities were thought of, applies to academic studies as it does to every action and decision of human life: "Whatsoever the hand findeth to do, do it with thy might." No work is worth doing badly, and he who puts his best into every task that comes to him will surely outstrip the man who waits for some great opportunity before he condescends to exert himself. We are not all adapted by nature to be physicians or lawyers, so it is well for the young man to find the line of work for which he is best adapted and then use all his energies to make it a success. The creamery business of today opens up a large field for intelligent young men who are not afraid to work, who are willing to work with their hands as well as with their heads. In fact, the man who successfully operates a creamery must be an all-around good fellow. The dairy business is practically in its infancy. We know very little about milk or its production. I think it was ex-Governor Hoard who said that the "laboratory of a cow was one of the darkest places in the universe," which is quite true. The success of the creamery depends more on the butter maker than any one else. Many things that to the careless maker seems of little importance, to the intelligent maker are of the greatest importance. This condition is quite evident to any one who has visited a large number of creameries. In some creameries, we find every evidence of prosperity. The maker meets the patrons with a "Good morning" and a pleasant smile, and weighs and samples the milk as it should be done. The creamery is in first-class order, and there is a pleasant atmosphere everywhere. It is a pleasure to visit such a plant. Contrast this with a creamery where we find everything in a dilapidated condition, with an untidy maker at the head of it, patrons dissatisfied and the complaint is made on every side that the creamery business does not pay. In fact, some of the patrons think that the creamery men are the greatest rascals in existence. This is what is preventing the creamery business from progressing as it should. Jealousy among farmers has destroyed more creameries than all other things combined. More faith in mankind is needed. I believe there are very few dishonest men in the creamery business. If one-fourth of the dishonesty that is printed in the sensational papers is true, the business of the world would be seriously affected. When we consider that only 5 per cent. of the world's business is done on a cash basis, we find that business men have faith in mankind. We frequently hear farmers in a community find fault with the creamery in their section and do everything they can to injure the operator's business, when in reality the very presence of a creamery in their neighborhood is

advancing the price of land possibly from three to five dollars per acre. With your permission I will review the butter business from the time the milk is received up to the finished product. The weighing of milk which seems of little consequence to some makers is a very important place in a creamery, and a place where the head maker should always be found in the morning. Here is the opportunity of coming in contact with the patrons and doing missionary work that will educate him to furnish a better product. It also gives the maker a knowledge of the condition of the milk that he is to handle that day. The importance of taking a correct sample of milk is quite an item in keeping the patrons satisfied. More dissatisfaction exists over the testing than any other business in connection with the creamery. If milk is allowed to stand only a few moments in the weighing can and a sample is taken without carefully stirring the cream, the result will be an inaccurate test which may defraud the patron or the creamery. The leaving open of milk jars, as frequently happens after samples are taken, will not give accurate results, as evaporation of moisture is taking place all the time. I have known samples of this kind to cause a variation of 2 per cent. Take up the question of testing milk. Testing machines must run perfectly smooth and at a certain speed to insure correct results. Sulphuric acid should also be of a certain specific gravity. These things require skill. The heating of milk for separation is not receiving the attention it should. It was my privilege at a great national convention to try and point out the defects in the butter exhibited. I found possibly 30 to 40 per cent. of the flavor was injured more or less by the use of live steam for heating the milk. It was an easy matter in most cases to select the butter where live steam had been used before reading the methods of making it, many using the exhaust steam from the engine to heat the feed water for boiler. Here we found the cylinder oil transmitted to the milk from the boiler, this giving a decided oily flavor to the butter. The use of boiler compounds showed their injurious effects also. Why live steam should be used for heating milk at the present time is a mystery to me. Many of the live steam heaters not only injure the flavor by transmitting impurities from the boiler, but the heating is not sufficient to give the best, or the desired results. The heating of milk is supposed to help the fluidity of the fat globules. The quick, flashy heating of milk has very little effect on the fat globules, therefore the separation is not as perfect. Milk should be heated for some time before separation to get the best results. The centrifugal separation of milk is a wonderful process. Think of a separator bowl making from six to twenty thousand revolutions per minute. Here we see sweet milk put into the machine and skim milk and cream immediately separated. Most any separator will skim clean to a certain limit if the machine is run perfectly smooth and at the proper speed. A little vibration of the machine causes a remixing of the cream, and no separator will skim thoroughly clean that vibrates. This is where some makers in large creameries lose possibly

more than their wages. The next thing is cream ripening, which is possibly the most important step in the whole process, as this is a factor that largely controls the flavor, and flavor is the quality that distinguishes butter from lard, tallow or any of the other fats. Flavor does not come by chance. Every intelligent butter maker is fully aware of the uncertainty and difficulty of producing a uniformly high flavor. Experience has taught us that when certain processes are followed, the resulting product is ordinarily of at least fair quality. But even under the best sanitary conditions the product is often strikingly variable in flavor from day to day. The cause of these variations and difficulties open up an important field for future investigation. The subject is of great scientific interest as well as of practical value. Butter fat in itself is supposed to have little or no flavor. It was formerly supposed that the flavor was largely due to the volatile fatty acids. The flavor substances are possibly absorbed by the fat or are associated with the other constituents which compose a portion of the butter. The chemical nature of the substance which give the delicate flavor and aroma are not known. I think I am safe in saying that it is generally accepted now that the flavor substances, whatever they may be, are the products resulting from the breaking down of the milk solids. It was shown by Professor Storch that they are the result of the growth of bacteria. Professor Storch tells us that the flavor of good butter comes from the decomposition of milk sugar. I might say that Dr. Weigmann, the noted German bacteriologist, held the same view when I visited his laboratory a little over a year ago. Dr. Conn, on the other hand, thinks that the nitrogenous material in milk, such as the casein and albumen, furnish the product which gives the flavor. The feed consumed by the animal no doubt has an influence on the flavor as well as on the color and the hardness of the butter. But in general this influence is much less than the effect of fermentation which has taken place in the milk and cream. In cases where feeds, such as turnips or wild onions and weeds are consumed by the cows, the flavor will undoubtedly be imparted to the milk, butter or cheese, unless the milk or cream has been pasteurized, when these volatile products pass off. The effect of different kinds of ferments is not as easily removed, not even by pasteurization. This is the principal reason why we get much different flavor in the winter than in the summer months, as the cows are usually milked in the stable and the germs that get into the milk are mostly of the putrefactive groups--those which cause ordinary decay. We found from investigation at our school that about 75 per cent. of the bacteria in milk were of the undesirable kind during the winter months, while in the best periods of the summer months we found as high as 90 per cent. of the desirable kind. The thorough brushing and dampening of the udder before milking and the removal of the milk from the stable as soon as drawn would greatly diminish these effects. In our best cream, we found from 92 to 98 per cent. of the bacteria present to be of the acid producing

species. A maker can more readily control the flavor by the use of a starter. An example of this was shown at the national contest. We find that one maker got an average score of 98.12. This was not brought about by chance nor entirely by the good milk furnished by the patrons. This maker informed me that he carried 12 or 15 starters during the entire contest. Here we find him selecting the kind of bacteria that produces the best flavor. A starter of any kind is only adding enormous quantity of a species of bacteria that we expect to predominate in the final product. This takes skill and hard work on the part of the maker. Starters of any kind are quite difficult to carry forward, as every detail must be attended to punctually. The maker must have smell and taste well cultivated so that he will be able to detect the slightest change or off-flavor. He must also have some knowledge of the principles of bacteriology. A few years ago, it was largely chance work for a maker to win two high scores in succession. Now we find makers who use pure cultures and have a knowledge of the scientific principles of cream ripening, scoring high in most every contest. It is asked, "Does all this care and trouble pay?" I would say yes, as the value of butter may be enhanced as much as five cents a pound. The churning and working of butter is another important factor that does not receive the attention it should from the creamerymen of the country. We have a law limiting the per cent. of water in butter to 16 per cent., yet we find in the chemical analysis of butter in the six month contest is something less than 12 per cent. The maker who is able to incorporate between 15 and 16 per cent. of water in his butter will increase his yield nearly four pounds to the hundred. Take an ordinary make of 500 pounds per day, and we will have a difference of twenty pounds. Twenty pounds at 20 cents a pound will give us \$4, quite an item on a man's wages. Here is where skill comes in. The dry butter or that containing a low per cent. of water does not sell any higher than the medium, and in some cases not as high. I tested butter in the London market and found the French Rolls and Danish Selected, which sold the highest in the English market, to contain about 5 per cent. more water than the New Zealand butter, which brought three or four cents less per pound. In this case, the New Zealander would lose four or five pounds of butter per hundred, and would also lose in price. I asked the late Professor Siegleke why the Danes incorporate so much water in their butter, and he answered that butter was supposed to be plastic. It was intended to spread on bread, and this could not be done if the butter contained all fat. While I do not like to see slushy butter, I think that from 14 to 15 per cent. of water can be incorporated with good results. It is almost impossible to form any conclusion of the amount of water butter contains by looking at it. Frequently butter that seems slushy will contain very little water under chemical analysis. Professor Storeh has been working on this subject for a number of years, and he has been unable to fully explain why some samples of butter have a very dry appearance and at the same time

contain a very high per cent. of water, some samples testing as high as 18 or 19 per cent. We do know that when a lot of cream is churned at a time that the overrun will be much greater than when a small quantity is churned. This is possibly due to the fact that when a small quantity of cream is used the fat globules are thrown together more compactly and do not hold the same amount of water as when a large quantity is churned. There are several other conditions that influence the yield which the skilled maker understands, and some conditions which I would not care to explain here.

The washing of butter is a far more important factor in buttermaking than is generally supposed. The keeping qualities as well as the flavor can be seriously affected by undesirable bacteria being transmitted through the wash water. C. Larson, one of my assistants, has been carrying on experiments during the past year along this line, and he has had some startling results from butter washed with seemingly pure water as compared with butter washed with water that had been pasteurized and cooled. I believe the time is not far distant when all wash water will be pasteurized or sterilized. Take the question of color or mottles, thousands of dollars are lost annually by butter being mottled. This defect is caused by an uneven distribution of salt, as many of you know. Take three lots of butter from the same churning, even where no artificial coloring has been added, salt one lot at the rate of a half ounce per pound, the second lot at an ounce, and the third lot at one and one-half ounces, and the color will be so strikingly high in the last lot that it could not be mixed with the other lots without showing streaks. This is no doubt due to the fact that salt has an affinity for water. The tendency is then to run together and form a solution. When salt is used, the water collects in large beads, thus giving the butter a darker shade of color. Whenever you find light streaks in butter you will invariably find no salt, therefore the first consideration in salting butter is to get good salt that will dissolve readily. The butter should not be drained very dry. It is better to use a little more salt if it is inclined to wash off some. Salt should always be put on the butter in the churn and churn revolved a few times to thoroughly incorporate salt and butter before putting rollers in gear, thus retaining as much moisture in the butter as possible. Allow butter to stand from fifteen to twenty minutes before working in this condition, and then work until butter has become waxy in appearance and salt ceases to be gritty. If these precautions are observed, there will be no danger of mottles. In the preparation of the package, tubs should be thoroughly steamed, then soaked for a few hours in a weak brine solution, when they are ready for a coat of paraffine. Parchment paper should be used of the best grade, after it has been soaked for ten or fifteen minutes in boiling water. It should then be emersed in cold water and left until used. If paraffine is not used, the tubs should be soaked for a longer period. Parchment paper should be allowed to project about an inch over the top of the butter and

neatly folded. The tub should be filled full and stroked off level. This gives a nicer finish. As a general thing, not enough precaution is taken in packing the butter firmly in the tub. Nothing looks worse in a striped tub than to see holes in the side of the package. The appearance is not only bad, but the imprisoned air makes the conditions favorable for the growth of mould. A nice, clean appearance and good finish go a long way in fixing the price. It is almost impossible for a creamery owner to place an intelligent estimate on the service of a good maker. We have one or two large creameries in Iowa that are getting 1½ cents a pound above western extras. These creameries could pay their makers three thousand dollars a year and still have 1 cent above left. If you have a good maker, do not hesitate to pay him a good salary. Five dollars a month given unsolicited would be more appreciated by a maker than ten dollars given on demand.

The opportunities were never better for first-class men in a creamery than they are today. College men need not hesitate to take up this line of work if they have a liking for it.

Mr. Holloway: I would like to ask the professor in regard to what he said about putting the paper in hot water and cold water. It is generally recommended to put it in brine.

Professor McKay: It is well enough to soak it in brine, but the hot and cold water destroys the bacteria.

Mr. Gurler: Do you soak your tubs in boiling water or cold water?

Professor McKay: I would prefer soaking the tubs in real hot water and leaving them stand for half an hour.

Mr. Gurler: How about salting the tubs?

Professor McKay: I prefer soaking to salting.

Mr. Slater: Would it be out of place to ask Professor McKay a few words on the starter? That seems to be the most important part here. I would like to ask the professor how he prepares his starters? Make it plain so that the boys will understand it.

Professor McKay: Do you mean a commercial starter or a natural starter, or both?

Mr. Slater: I mean a commercial starter, because I do not believe in any other starters.

Professor McKay: Our method of preparing a starter is to take a glass bottle that will hold about a pint of milk. We endeavor to have the bottle

fairly cleansed, and we pasteurize the milk in the bottle, place the bottle in a pail of hot water and apply the steam slowly, so that there is no danger of expansion and breaking the glass. The less you expose milk, the better condition it will be in and the better the result will be. We heat the milk to about 180 and cool back to about 75, and inoculate with the culture, whether Hanson's or Keith's, or some of our own cultures, and then we pasteurize about ten gallons of milk.

The Secretary: Which acid test do you like best, and why, the Mann's or Farrington's?

Professor McKay: I don't know that I have any decided preference. We have found that the Farrington tablets are not of uniform strength, and therefore we have used Mann's test more than the other test. The other test is convenient for the dairy. Most of the supply houses now sell the solution of the proper strength, and we have told the farmers to buy it.

Mr. Slater: I would like to ask the professor how he carries his starters over from one day to the other?

Professor McKay: It is possible to carry starters for two days by inoculating the milk with a small quantity of mother starter. We usually use a cubic centimeter to the pint, and we have used it when it was two days old.

Mr. Slater: Wouldn't it be a good way to have your starter ready and go to the creamery the next morning and set it over? Wouldn't it make a better starter?

Professor McKay: That would be all right if you had milk.

Mr. Slater: Pasteurize the milk the day before and cool it down to about 50 degrees and the next morning, of course, his milk will be cool to set his starter for the next day. I would have a place under it to put hot water from the boiler and warm it up. I believe it would keep the germ growing right along and not stop it.

Professor McKay: The trouble with that would be that milk that was pasteurized and then cooled to 50 or 55 degrees, there would be danger of destroying some of the germs, and then your butter would be off flavor.

Mr. LaFuze: I would like to ask the professor if he ever had any trouble with mottled butter without the cause coming from the salt?

Professor McKay: I have seen butter mottled when they did not use any salt. Salt, as I said before, causes the beads or drops of water to be-

come much larger and that causes a darker shade, and I have seen butter mottled when it was caused by the cream becoming too sour, and that is when cream has become over-ripe.

Mr. Drischel: I would like to ask you from a business standpoint with reference to butter making as a profession. We have 70 creameries in this State. You have several hundred over the State of Iowa, and have only been in the business a few years, while we have been struggling at it for several years. Explain to us your method of getting the farmers interested.

Professor McKay: We have in our State an organization sometimes called the Butter Makers' Association. We run this in connection with the institute work, and we are endeavoring to send speakers that can talk on dairy subjects to the institutes. I think the success in Iowa is largely due to the mixed population. We have a great many Germans and Danes and men who readily see the advantages of dairying and they take up dairying from that standpoint. It is largely a question of people.

Mr. Gurler: Is it right to use the word "man" altogether there? Don't the women have much to do with it there?

Mr. Drischel: Both.

Mr. Gurler: Isn't it a fact that the dairying develops more rapidly where the women are more interested and will go out and milk? Don't you think that is a fact?

Professor McKay: Yes, and that comes largely from the Scandinavian population.

Mr. Drischel: Does your state take pride in making your appropriations as small as possible from the Legislature? This is a new building (referring to the Purdue University Agricultural Building in which the meetings were held.—Ed.), and this is the first appropriation by the State for agriculture. What has your State done in that respect?

Professor McKay: Our State, at the last session, appropriated six hundred thousand dollars to the Agricultural College.

Mr. ———: I am not a dairyman, but I think Mr. Drischel has touched the point exactly, and I think the farmers ought to ask for a hundred thousand dollars and go after it and we will get it.

Mr. Drischel: It is a fact that dairy products today are below other farm product.

The Secretary: Mr. President, the first impulse was to say "no," and the second impulse is to say "yes." I haven't the facts at my finger ends to back that opinion, but I know there is not enough first-class butter in our markets in this city to supply the demand. I think it is true that there are some disagreeable features in the production of butter, especially where you produce the ordinary market grades. I feel this way, that the farmers of our State, many of them, are making enough money so that they are satisfied and they are not going to do some of the disagreeable work in connection with the dairy for more money, but I also believe that if in every community in the State of Indiana enough people who have got to do whatever they can do to make the most money will do the necessary work in the dairy that they will get a good return for it. I believe that the status of the dairy business for the next period of years will be such that any person who will make butter in the creamery can produce it at a price that will bring him a fair profit, and I also believe just in proportion as he increases his business he may increase his profit. There is too much poor butter that don't make anybody a profit. I know that among our Indiana creameries there has been no complaint about the price they are getting for their butter, but the howl has been, "How can we get the farmers to bring more milk?" We have to show two classes of people the advantages. First, that class of men who have to work early and late to make both ends meet—when that class take up dairying, we have to show them that they can make more money in dairying than in anything else, and the second class are the rapidly increasing number of land owners who are renting their farms. There are lots of farmers in this State who lease their farms that do not receive a reasonable interest on the investment. I believe these men are realizing that, because I have seen one or two inquiries in the paper about a system of renting which would be based on dairying. One man I ran across within the last month leased his farm to a dairyman and he furnishes all the farm and furnishes all the stock for half of the return, half of the butter and half of everything kept on the farm. Then if there is anything to be bought that is not produced on the farm, the landlord pays for half of it. The renter furnishes all the labor and gets half the proceeds.

Mr. Follette: I saw in a paper the other day an item concerning the creameries in Iowa, and they said that the good times are the cause of the decrease. It was because the corn was so high.

Mr. Gurler: You may take it in the Elgin section of Illinois. I know one of the most successful dairymen in Kane county, Illinois, who has two farms. On one of his farms he is keeping steers in place of milking cows. The trouble has been the high price of beef. If men make as much money without milking the cows, they are going to refuse to milk the cows; but the tide is turning, for I know of many steer feeders in our

community that will not get ten cents a bushel for the corn they put in their steers. They drop the cow which they are used to and go into a business that they are not acquainted with, but they are coming back towards the dairy.

Dr. Woolen: The question has not been answered as suggested by the first question, why Iowa succeeded so well and is known as a dairy State. An address was made here yesterday by our Secretary, showing what Indiana was doing compared with two or three other States. Now, as far as steers are concerned, and as far as dairying is concerned, the profits are the same in Indiana as they are in Iowa or Illinois. The question is for something to help Indiana. Iowa don't need any help. Iowa gets six hundred thousand dollars appropriation, and we go to Indianapolis this winter and we get what we can.

Mr. Schlosser: And that isn't very much.

Dr. Woolen: I have been on the committee a time or two to get five hundred dollars appropriation for the dairy interests of this State, and it was very humiliating. I don't think I was ever more humiliated than I was when I went with the committee for five hundred dollars. I think the suggestion about nationality has a good deal to do with the dairy interests in Indiana. The northern part of this State is not like the southern part, and so we have all kinds of people as well as all kinds of soil in Indiana. I would not give Indiana soil for that of any other State in the Union. I am a native Hoosier, and I think Indiana has more resources than any other State of its size. We can't have the Scandinavians here, because the prices are too high. They were one of the best emigrants that ever came to America, and Iowa and Wisconsin have been very greatly benefited. The next twenty-five or fifty years of those States' history will show the good results of this population, but that is not Indiana. We are here in Indiana. We are here at Purdue University. We are here as the Indiana Dairy Association, and the question is how can we help this along. I have worked my brain along the line of co-operating; I work my place on the co-operative plan. I would give anything if I could make a contract with a man on that half basis that was talked about, or I furnish two-thirds. Two-thirds of the expenses and everything. I am glad to get a chance to do that.

Mr. Drischel: The time is up. We have had a good deal of discussion on starters in ripening of the milk. I do not approve of resolutions, but I do approve of a good live committee for the Legislature as a starter that when they appear before the Ways and Means Committee of that Legislature that they will impregnate the members of that committee with bacteria and germs for the good of this Association,

The Secretary: The afternoon program will be the inspection of the work done in the Dairy School, and any other parts of the University that you feel inclined to go to. There will be somebody around the farm to answer any questions. The farm men are around at their labor, but there is somebody there that will show you about.

THURSDAY AFTERNOON.

January 22, 1903, 4:30.

The butter and cheese on exhibition was scored by Professor McKay. As he went over each lot of butter or cheese, he dictated to the stenographer his criticisms and suggestions. These, together with the score card, were mailed to the exhibitor later.

A number of different lots of butter and cheese were brought into the convention and samples passed for inspection. With the butter at hand the following discussion occurred:

Professor McKay: Mr. Chairman, Ladies and Gentlemen—It is customary in our State in butter contests of this kind to line up the exhibitors behind the tubs and point out the defects. In other words, we score the exhibitor as well as the butter, but here we adopted a different method.

The principal thing in scoring butter is flavor. Flavor we judge by the sense of taste and smell. I presume at some time we all had about the same taste, but there are certain conditions or standards fixed by commission men with reference to flavor. I have sampled butter in a great many places and followed up the experts and the butter they would pronounce high in flavor, I would pronounce good also. Of course, we get the flavor by the sensation to the mouth and smell. The Danes have gained a reputation by producing a clean flavored butter. They sell about 98 per cent. of the Danish butter in the English market. The best selling butter is French rolls. I think possibly the reason why the French rolls have a preference in that market is that at all the leading hotels the cooks are mostly French, and also the waiters, and they have a preference for French butter.

The next quality we have in butter is body. Some use the term texture. Body is the quality in butter. If you press the butter in the hand it has a firm body or it has a waxy body. It should be uniform and not greasy. If the cream is churned at too high a temperature, the body is

defective, and in that case we would say it had a weak body or greasy body. We have here a great variety. We have the high clean flavor and we have the disagreeable flavor.

Take the question of salt. Most all judges have the same method. If they taste the butter and it tastes salty, there is too much salt; and, on the other hand, if it tastes flat, it hasn't enough salt. Of course, when you taste butter and find it gritty, you would mark it off there. We give half to the flavor and 10 to the salt.

The finished packages: I want to call the attention of the butter makers to that one point. No man would think for a moment of going to see his best girl dressed in his overalls and working clothes, and the same thing is true of sending a defective tub to the convention. When you send a tub to the convention, send it in as good a shape as you can get. There (indicating) is an ideal finished tub of butter. You see the paper laps about three-quarters of an inch. Now, see the finish on that (indicating another tub). Some parts of the butter paper laps two inches and some half an inch. In sending butter to the conventions, we have better results in ash tubs than in spruce tubs. The spruce seems to soil easy and take up dirt. In scoring butter in Oregon, I was able to point out the man that used alfalfa feed. Also some of the people that kept their cream in the house. The food flavor. I think that one lot of butter here shows strong food flavor taken up from the cream being kept in the kitchen. We have two forms here. There (indicating) is what I would call a vegetable flavor. It is a good thing for the butter maker to get so he can tell good flavor. I spoke today about mottles and specks. This No. 6 butter, that man will probably lose two cents a pound for not working that butter more.

Now, that is about as good a piece of dairy butter as you will find in a week's travel. We have a difference in some butter of ten points. Ten points should make a difference of four or five cents a pound. I suppose in this butter here that the milk and feed and cows are practically the same all the way through. It shows carelessness on the part of some one. It may not be due to the butter maker.

Mr. Schlosser: I would like to ask the difference between the best creamery and the best dairy butter.

Professor McKay: Three points and a half. It is possible for the dairyman to make as high grade butter as the creameryman.

Mr. Schlosser: How many points do you grade for body?

Professor McKay: I followed the score card; I think twenty-five.

Mr. Schlosser: How much in flavor?

Professor McKay: Fifty is the score card here.

Mr. Willey: What are the conditions that make the difference of four points between the best dairy butter and the creamery butter?

Professor McKay: It is the clean, mild flavor that the butter has. The creamery man has used a starter.

Mr. Schlosser: Will you give us the scores of the best creamery butter and the best dairy butter?

Professor McKay: I don't know whether the Association is ready to give the scores out until the last day. The reason for this is that sometimes a person gets a little bitter and they go home and they do not get the benefit of the rest of the convention.

The Secretary: This portion of the program should not have been held until tomorrow, but Professor McKay is a very busy man, and we want to get the benefit of his criticism while he is here, and the judgment of all concerned is that the score should wait until tomorrow.

Mr. Argo: I would like to ask the professor about the difference in the score of those two creameries, the best and the poorest creamery, the cause of the difference in flavor.

Professor McKay: Well, that is a pretty hard question to answer. I am under the impression that the butter has overripe cream. Whether it was hand separated cream or gravity, I don't know. The tub has taken up flavors of vegetables. That man should have made that butter by using a very heavy starter.

In regard to this mottled butter I wish I could prevent all makers in the country from making that kind of butter. There is a cause for making bad flavored butter, but at the present day there is no excuse for making mottled butter. Butter that is mottled to that extent would not go in the Chicago market. The difference there would cause a difference of from three to five cents a pound in the price. As I stated this forenoon, if the maker will take and salt his butter and will throw water in the churn with his salt and will leave it stand in that condition for fifteen minutes, remembering it is the water in the butter that dissolves the salt, not the working, and then work your butter, you will have less mottled butter.

I was out to Fresno, Cal., about two weeks ago. Most of the butter was hard and dry. There was a large creamery at Fresno and I went out there and watched the maker operating his creamery. He churned at a very cool temperature; he drained his butter and let it drain for half an hour and then he put in his salt and started his worker going and worked it as much as fifteen minutes. In fact, the butter didn't have any grain when he got through.

We have what we call extras, firsts and seconds. The extra is supposed to be fine butter. Five or six years ago it was customary to have 95 for the standard for extras.

The Secretary: What is imitation?

Professor McKay: Well, imitation, that is worked-over butter that is made partially from ladels. We have also the process butter on the market. I don't know that I can quote you just what the score for the imitation would be.

The Secretary: What is ladel butter?

Professor McKay: It is butter that is gathered up all over the country. It is melted and the casein is removed. The theory is that butter fat contains no flavor. The butter is heated in a large tank and the pure oil is taken off and the oil is pumped up to a tank where air is forced through that carries off the odor, and after this process is carried on for a certain length of time the oil is cleansed in cold water.

Mr. Schlosser: There is one point I want to bring out, and that is the matter of scoring. Chicago has 93 as extras, 88 first, and everything below 88 and seconds.

Professor McKay: The Danes use a standard of 75 for scoring.

Dr. Woolen: Is it possible to make a process or renovated butter that will score?

Professor McKay: They will make a renovated butter that will score 92 or 93. I have come across renovated butter in several tests. Renovated butter has not the same grain that real butter has.

Mr. Drischel: I would like to hear Mr. McKay's method of scoring cheese; whether it is good, bad or indifferent.

Professor McKay: I took occasion to criticise the finish of the butter, and I will do the same in scoring the cheese. Now, here is a cheese that is ugly, unsightly, caused by the cloth lapping over here about three inches, giving the cheese a bad finish. Shows poor workmanship.

There is a nice-smooth finished cheese. The only fault with that cheese is that it is too new. The cheese is of very good color for winter cheese. This cheese is pasty and new. Cheese, when it is well cured, is one of the best foods we have. A man can live on cheese. Butter is only a supplemental food. Well cured cheese has all the elements of a well balanced ration. The curd is changed from an insoluble to a soluble compound. I don't know why we have got in the habit of eating green cheese.

There is a piece of cheese that would be a nice cheese if it was cured a little longer.

This milk was not quite clean. It shows a gassy fermentation.

CRITICISM OF BUTTER AND CHEESE BY PROFESSOR MCKAY.

CHEESE.

No. 1. The flavor is a little sharp. The body is quite pasty and weak. Curd should have been cooked a little firmer and stirred a little dryer. Cheese contains too much whey. The finish is very poor. The bandage should lap about an inch and should be more neatly folded over the cheese. The appearance of the cheese as bandaged makes a very bad impression in regard to the maker's ability as a cheese maker.

No. 2. This is a very nice winter cheese. A little more cure or age would have helped the flavor. The curd should have been cooked a little firmer or stirred until dry. The finish is very nice and shows good workmanship.

No. 3. This is a very good winter cheese. Cheese would have stood a little more curing and showed up better with age. The body is weak and pasty. Cooking curd a little dryer, or cooking the curd a little firmer and stirring the curd would have helped the body.

No. 4. The flavor is unclean. Shows that some impure milk has been used. Cheese shows a number of pinholes due to gas fermentation. The cheese would have stood a little more curing. A little more curing would have helped the flavor some. Texture is open, due to milk used or gas producing bacteria. The style is poor. The bandage should lap about an inch and should be neatly folded under the cloth instead of over the cloth as you have.

CREAMERY BUTTER.

No. 1. A rank, strong flavor, no doubt being due to over-ripening of cream or cream being too ripe when received. Would advise you to use a good commercial starter and not to ripen cream as much. Use 20 or 25 per cent. starter.

No. 2. Shows a flat, lard flavor. Cream would have stood quite a bit more ripening. Flavor is slightly unclean, showing natural conditions. Would advise you to use a heavy commercial starter, especially during the winter. Body is a little weak, indicating either churned at too high a temperature or did not hold cream long enough at churning temperature.

No. 3. This is an excellent piece of butter as regards flavor. Just about as fine a piece as we can get anywhere. The body is a little weak, the butter has been overworked. You warmed up and churned your cream at too high a temperature. Did not hold cream long enough at churning temperature. Have no other criticisms to offer.

No. 4. A rank, unclean flavor. Possibly due to the use of old, over-ripe cream. It also shows a vegetable flavor, indicating that some of the cream or milk had been kept in the house. Would advise you to use a very heavy commercial starter, and if you are using hand separator have your patrons skim as heavy cream as possible.

No. 5. This is an excellent piece of butter. Shows good workmanship all around. The cream would have stood a little more ripening. A slight food flavor, which may be due to the use of an old starter or some of the milk being kept in the stable. If you can make this kind of butter all the time do so. It is a safe kind of butter to make.

No. 6. Flavor is fairly clean. Cream would have stood a little more ripening. Butter is badly mottled. This should be overcome by working the butter quite a bit more and adding the salt to the butter while the butter is in a moist condition.

No. 7. Flavor unclean and rank. Shows also stable flavors. Would advise you to use a good heavy commercial starter. Indications are that you have used some old cream that had been kept in the house and taken up food flavors.

No. 8. This butter has a very rank, unclean flavor. Shows a strong vegetable flavor. Indications are that old hand separator cream had been used that had been kept in the house and had absorbed food flavors. Would advise you to use a good heavy starter and exercise better judgment in receiving milk or cream of this kind.

DAIRY BUTTER.

No. 1. This is a very nice, clean piece of butter for dairy butter. Cream would have stood a little more ripening. The shade of color is a trifle high, and the salt shows a little gritty, not enough to cut the score. If you can make this kind of butter all the time, you will be safe in making it. It is much better than the dairy butter found at the different tests.

No. 2. A slight old, food flavor. Cream would have stood more ripening.

No. 3. This has a slight old flavor, indicating that the cream had been kept too long before churning. Cream would have stood a little more ripening. The shade of color is a little too light for the present demands of the market. The salt is a little grittish. The butter would have stood a little more working.

No. 4. Shows a strong vegetable flavor. Indications are that the cream had been kept around the house where it had taken up food flavors, or might have been kept in the cellar and vegetables kept near. Cream would have stood a little more ripening.

No. 5. A stale, old flavor. Indications are that the cream had been kept too long before churning. The cream would also have stood a little more ripening. This would have given you a more pronounced flavor.

No. 6. An oily, greasy flavor. May be due to some of the cream absorbing food flavors. Cream would also have stood a little more ripening.

Mr. Willey: I would like to ask when a cheese reaches the best stage to eat under normal conditions?

Professor McKay: That will depend somewhat on the manner of making the cheese. If you make a cheese full of moisture and the curd is soft, a cheese of that kind can probably be eaten at its best in about four weeks. It is customary to use less salt in the spring and then the cheese will retain more moisture in the curd, and a cheese of that kind will be ready to use in about four weeks. After it is ripe, it is like a harvest apple—it soon perishes.

BANQUET.

At 6:30 o'clock about seventy members and friends sat down to the first Indiana Dairy Association banquet. Prof. Severance Burrage, of Purdue University, acted as toastmaster. A number of those present responded in entertaining remarks to the toasts proposed. This part of the program was cut short by the arrival of time for adjournment to the evening program.

THURSDAY EVENING.

January 22, 1903, 7:30 o'clock.

Music by Purdue University Band.

GETTING MILK TO THE FACTORY.

F. G. SALISBURY, ORLAND.

Mr. Chairman, Ladies and Gentlemen: I have no paper prepared. About three weeks ago I started for the Legislature, and I want to say to you that I went there with about as much experience in that kind of work as I came here to speak before an audience, so I will ask you to pardon me. I hope to get something out of this myself, and if I can impart any points to my friends I will be glad to do so.

First, I will explain to you where I live. I suppose the red spots on that map indicate the creameries in the State, and there is a red spot in the upper right-hand square, and of that creamery I have been the manager for a little better than a year and a half. Our traveling men come

to see us and say that we live fourteen miles from anywhere. We are that far from a railroad and in a neighborhood that is not a dairy country. Never has been a dairy country, but I am thankful to say it is getting that way.

The topic I was to talk about was in regard to getting milk to the creamery. The way we get it, we haul it, and I take it from what I can learn, we have a little different method from most other creameries in the State. We hire our teams to haul the milk. We have ten teams engaged, and we get all the milk we can get in the radius of ten miles. The plan is not entirely satisfactory at present. The increase in milk has not kept up with the increase in the price of the drivers. This getting milk to the creamery is the greatest obstacle in our way that we have to deal with. Of course, the help is scarce, and our drivers are continually wanting an increase in wages, while they do not increase their loads in proportion. The method we have, we are paying our drivers \$1.50 a trip. They will range in loads from 800 pounds to a ton each. At our last annual meeting I advanced the plan to the board of directors that we dispose of the drivers, and see if we could not get the patrons to haul their own milk, but they thought we were not quite ready for that yet, and so we are going on in the old way, and our creamery paid out this year, but our profits were small. The main trouble with us is too many one, two and three cow men. We have very few men that have a dozen cows, but the people seem to be well satisfied that way. I think two years ago we had but one man in a radius of twelve or fifteen miles that had over ten cows, while now we have several of them, and I would like to talk to some of the creamery men here so that I might find out the different plans of getting the milk to the creamery. I talked with the manager of the creamery in Lagrange County, and they are experiencing the same trouble we are. Our creamery has done quite a business. I think, for its location, twelve miles from a railroad, hauling all our coal from the railroad and all our product to the railroad. Of course, our expenses are greater than if we were on a railroad.

During the year 1902 we received at the creamery 2,593,775 pounds of milk. The total butter made was 117,037 pounds. Our creamery is co-operative. The patrons have a perfect right to draw out part or all the butter they make. During the year they drew out for their private use 22,000 pounds that was peddled out in that little county, and I want to say that we have an industry started in that county that will be heard from before many more years. I could talk better, perhaps, if some one would ask questions.

Mr. Schlosser: How long has your creamery run?

Mr. Salisbury: About two years and a half.

Mr. Schlosser: What is your average price per pound for your butter?

Mr. Salisbury: I could not answer that question. I don't know that I figured it up. I heard one of my neighbors, and, of course, his butter would average with the rest, say it averaged him net 17 cents.

Mr. Schlosser: Have you ever tried to get the farmers to club together and bring their milk in?

Mr. Salisbury: I have tried to work that up in various localities, but I never could get them to try it.

Mr. Schlosser: What was their excuse for it?

Mr. Salisbury: The general excuse was that they did not have time; they would rather drop the cow business than take the time to go to the creamery.

Mr. Schlosser: How much do you figure the cost of getting the milk to the factory?

Mr. Salisbury: It costs us just a little better than 15 cents a hundred pounds.

Mr. Schlosser: That would be about 4 cents a pound for the butter fat?

Mr. Salisbury: Yes, sir.

Mr. Schlosser: It would seem to me that you could well afford to club with your neighbors and go to your creamery once a week and deliver your own milk and have the benefit of this 4 cents a pound.

Mr. Salisbury: Well, the opinion of our board of directors was that the people haven't got money enough tied up in cows yet so that they would do that. A man with five or six cows, of course, can not leave his farm work and go to the creamery with his milk. If they would do it, they would increase their cows until they had milk enough. Do any of you ever have an overrun or overplus?

Mr. LaFuze: Sometimes we do.

Mr. Salisbury: Well, in our settlement sheets, we test each man's milk and in footing up the books at the end of the month, we find we have got eight to twelve hundred pounds more than our test indicates.

Mr. Gurler: I would like to ask Mr. Salisbury a question: You are located some distance from a railroad?

Mr. Salisbury: Yes, sir.

Mr. Gurler: How do you find the cost of making butter compared with the neighbor who don't have the long haul to make; do you find it satisfactory to your stockholders?

Mr. Salisbury: The expense of the hauling?

Mr. Gurler: The expense of running your creamery. You haul your coal, also?

Mr. Salisbury: Yes, sir.

Mr. Gurler: And your butter back?

Mr. Salisbury: Yes, sir.

Mr. Gurler: I want to know how you compare in cost of operation with your neighbor who does not have the haul?

Mr. Salisbury: It is more expensive for us. Of course, our coal costs us for the hauling \$1.25 a ton, while the other creameries do not pay over 10 or 15 cents, possibly 25.

Mr. Gurler: Do you run your creamery on the same plan as the Lima Creamery?

Mr. Salisbury: Yes, sir.

Mr. Gurler: What do they get a pound?

Mr. Salisbury: Three cents.

Mr. Gurler: What are the farmers producing that are not producing milk for you?

Mr. Salisbury: Hogs, corn and wheat.

Mr. Gurler: They haul these things to market?

Mr. Salisbury: Yes, sir.

Mr. Gurler: You haul your fuel and butter and they haul their wheat, and there is more object for the men that live away from a railroad than there is for those right on the road.

Mr. Salisbury: I went to work and showed a farmer we could pay him more for his milk than he was getting out of it, throwing in his own labor, and do you suppose we could get that man to see that? The only thing I could get him to see was the 4 cents a pound.

I will tell how I have caught a good many good men. When this creamery started, I was as skeptical as any man in the neighborhood, but in my boyhood I was raised on a dairy farm; my father and mother carried on a dairy, and I declared by all that was great and good that I would not be in the dairy business, but I got interested in the creamery and the further I go with it the more interested I am, and when the creamery started I said to my wife—we had four cows—"I am going to buy three more, and I believe the seven cows will pay the hired man." She was a little skeptical about that, but we tried it anyway. I went out and bought three cows, and I kept the hired man by the year and when the year run out I had paid the hired man \$200 and had \$28 in my pocket, and I have told that story to my neighbors, and I have drawn a good many of them into the creamery business in that way.

Mr. Gurler: I would rather take my chances off of the railroad than right on the railroad.

Music by the Purdue University Band.

The President: On account of the condition of the lights, it becomes necessary that we have Professor McKay's talk next.

DAIRYING AT HOME AND ABROAD.*

PROF. G. L. M'KAY, AMES, IOWA.

Much progress and many changes have been made in the methods of manufacturing and marketing dairy products. We have passed the period when the country grocery store sets the price. Today our markets are the markets of the world. Pleasant recollections, however, still linger of the old time dairy, when our mothers used to heat the milk on the kitchen stove and skim the cream off with a little flat skimmer and from the up and down dash churn take out the golden butter that we loved so well in our boyhood days. Sometimes how we longed to go fishing and time dragged by so wearily that the minutes almost seemed like hours. Some of us, however, learned to use hot water to hasten the gathering of the golden granules. These since have been replaced by the modern centrifugal separator. Now we have the up-to-date dairy where the cream is immediately separated from the milk and the sweet milk is ready to be fed to the calves in the best possible condition. In this scene, we see the one woman reading Hoard's Dairyman, which in itself is a sign of thrift and progress.

* Illustrated with lantern views.

The next is a Washington scene, showing the latest thing in centralization. Here hand separator cream is gathered in from a radius of three hundred miles. These central plants are started up all through the West. The benefits claimed for this system are uniformity of quality with greater opportunities for selling and cheapness in manufacture as less skilled labor is required. However, the quality has not been raised by this system. Many think this is a backward step toward the old gathered cream system.

Whether this be true or not, it is evident that a lot of education will have to be done in caring for the cream on the farm to bring the quality up to the whole milk system.

The next is a scene on the Hazelwood ranch in Washington, showing the dairy herd. Following this is a chicken ranch in connection with the dairy business. It is another Washington scene. Here we find skim milk utilized as chicken food with apparent success.

Next comes a typical western ranch, showing a large field of alfalfa. Here we have the largest creamery in California, at Fresno, in San Joaquin Valley. They make as much as five thousand pounds of butter per day. In this valley they can keep one cow to every acre. The soil is very productive, being as rich, possibly, as the Valley of the Nile. Irrigation is carried on here and as much as eight tons of alfalfa per acre are raised from four to five cuttings. This also is the raisin belt of California. This cut shows seedless raisins growing where the yield reaches sometimes fourteen or fifteen tons per acre. Oranges and olives are grown in abundance in this valley, as well as wine grapes. Leaving California, we pass to Iowa. Here we see the laboratory of the up-to-date creamery at Sioux City, Iowa. The Hazelwood plant where they make between fifteen and twenty thousand pounds of butter per day. The next is a churning scene in the same plant. Following this are the Farrington cream ripeners, and here we see butter piled on the tables in the same plant. Then we see them putting the cream in the churns.

Now we come to the large ammonia plant which is used for cooling the different departments of the building to any desired temperature. The eighteenth shows the finished product of the famous Hazelwood brand of butter being carried to the table.

Next comes a general view of the main floor of the Iowa Dairy School, showing the different kinds of machinery required in a dairy school.

Following this is a dairy class making cheese at our school. These boys are seniors. It is needless for me to say that they are not working very hard.

Here we have our college herd quietly grazing, and some are standing in the cool water. Here is a scene from the dairy school in Belgium. It is quite evident from this picture that the women do most of the work in their dairies. The same condition exists in agricultural work. No country is more interesting to a traveler who is interested in dairying than little Holland. This country is peculiarly adapted for dairying, owing to its cool,

moist climate. The northern part of Holland presents a very unique picture to the traveler, with its small, green fields dotted here and there with numerous windmills and the large herds of Holstein-Friesian cows quietly grazing. The monstrous long-armed windmills, resembling an old lighthouse above the sea, are used for various kinds of work. They grind grain, pulverize rock and manufacture paper, but their most important duty is to pump out the water from the marshes into canals so it may find an exit to the sea, otherwise the lowland would be submerged. Excepting Greece and Great Britain, no country has so many inlets as Holland. The Hollanders, as a people, might be termed a little slow, but the government is certainly not slow in appreciating the benefits that the country derives from dairying, as eight instructors are employed, largely aided by the government, whose duty it is to give free instruction wherever it is required. The factory system is not carried on to any extent in Holland. Most of the cheese is made in the home dairy on the farm. The numerous cheese markets and cheese exhibitions give the instructor an opportunity to examine each maker's output. Both the Edam and Gouda cheese as displayed in the stores of Holland are very different in quality from those sent to America and England, being much softer and richer in butter fat. The cheese consumed in Holland, Belgium and France are much superior in quality to those sent to England, America and the tropical climates. I had some difficulty in finding the solution for this, as the makers and instructors maintained that the cheese were made the same for all markets. The difference was caused by the manner of curing adopted by the exporters after the cheese came into their possession. The Edam cheese are manufactured in one part of Holland while the Gouda cheese come from another part.

Holland might be termed a country of cities. The traveler in going about through the country is constantly coming into cities, so much so that he wonders where the agricultural population reside. While these cities are naturally quaint with their streets, numerous canals and bridges, to an American they seem ancient and slow. Some large cities have no street car system, electric lights or water system, yet there is an abundance of water everywhere.

Their road system is far superior to ours. Good macadamized roads are everywhere. Most of the residences in the rural districts are of brick with tile or thatched roofs. In some cases both are used on the same building. The scalloped edges of the thatched roof overlapping the fancy painted tiles make a beautiful, lacey appearance that resemble a handsomely draped window. The nicely laid brick walks in front of the houses, the flower beds, the well kept lawns and numerous trees make a very picturesque home for the Holland farmer. Notwithstanding all this, frequently under the same roof in the back part of the house are housed the well-kept cows. The Hollander loves and cares for his cows almost as much as a mother does for her children.

Everything pertaining to dairying is kept scrupulously clean, even the cows in many cases being washed before they are milked. I have never seen a place where the old adage, "Cleanliness is next to Godliness," comes in better, and I believe that the fine flavor of the Holland cheese is largely due to their cleanliness. The slow, quiet customs of the people seem also to have been transmitted to the cows. Dogs are seldom used to drive cows. They, however, have their place in Holland, but it is as a beast of burden. They frequently take the place of horses when the loads are not too heavy. It is quite a common thing when driving through the country to meet with carts that are drawn by dogs. They are used in the city for peddling milk and other light work and on the farm for drawing milk from the milkers to the dairy. Holland is certainly not a paradise for dogs, as very few fat ones are to be seen.

Good grass land or land in the dairy section brings a much higher price than that in any other part of the agricultural district. In the dairy belt of Holland, dairying is the chief occupation of the farmer, hence every care is given to the production of milk and the care of milk. The farmer, as a rule, does not try to follow any scientific minds in feeding. Roots, hay and oil meal are fed. The oil meal is used only in the winter when cows are on dry feed. They have no set rule as regards the proportion of feed. This, they maintain, depends upon the judgment of the feeder and the cows he is feeding.

The Edam cheese as well as the Gouda cheese are made in two different sizes. The most common size for an Edam cheese is about three and one-half pounds when cured. The larger Edam cheese weigh about twice that much. This cheese takes its name from the town of Edam, situated on the Zuyder Zee, near Amsterdam. The place has become famous as a market for this kind of cheese. Every week markets are held at Hoorn, Edam, Alkmaar and Purmerend for the sale of cheese. The farmers take their cheese to market in a one-horse wagon, which is made of light wood and has a deep paneled box. This wagon is used almost exclusively for hauling cheese to market. The farmer for this occasion dons a white suit. The cheese are ready for market when about three weeks old. On arriving at the market, which is a large open space in the middle of the city, paved with stones, straw is first put on the pavement, then cheese are piled on it in a pyramidal pile like so many cannon balls. To protect the cheese from the sun a heavy white cloth is spread over the pile. When market is open the buyers pass among the piles, occasionally sampling a cheese with a tryer. The most common test used is to take a cheese in the hand and strike a sharp blow with the knuckles of the other hand, and if it has a hollow or dead sound they know the size of the holes by the ringing sound it makes. The prospective buyer buys or makes an offer for the cheese, after he has examined them, and if the seller thinks favorably of the offer, they strike hands. If he accepts the offer, they shake hands very heartily. When the cheese are sold

they are placed on a skid that holds about 150 cheese and official weighers place it upon large balances in the market building and balance the cheese with official weights. The seller then carries the cheese over to the warehouse and the buyer claims them. The men use a yoke arrangement over their shoulders which is attached to the skid for carrying the cheese. The price paid the day I attended the market in Hoorn, on July 4th, was 25 cents per pound of their money, which is equal to about 10½ cents in our money. The price varied on different lots of cheese, according to the quality, the same as it would at one of our markets.

One of the best factories in Holland is at Hoogkarspel, near Hoorn, in northern Holland. D. Brandar is director and manager. This factory, as will be seen by cut, is a handsome brick structure, with tile roof. The pavement surrounding the factory is of cut stone. Mr. D. Brandar is the gentleman in the picture who stands in front of the horse with his hat off. I found him to be very obliging in every way and well posted on dairying in general both in his own and other countries.

I can not speak too highly of the kind of treatment I received at this factory. The picture outside the factory represents an old cheese press with perforated tin for filling cheese hoops on top of the press and the two sets of wire knives or curd breakers resting against the press. The factory is a two-story building with an open attic where the cheese are sometimes kept. The building is well constructed and all the rooms have good ventilation. The whey tanks, as well as the interior of the factory, are kept scrupulously clean. In fact, this is one of the best factories I have ever visited. One of the reasons for keeping the whey tanks so very clean is that the whey is skimmed and the cream churned into whey butter, which is quite an article of diet in Holland.

While the Edam cheese are made in the north on the Zuyder Zee, Utrecht, Holland, is the center of the Gouda belt. This cheese is much softer than the Edam cheese and might be called the typical Dutch cheese. There are two sizes of Gouda cheese as well as of Edam cheese. The large Gouda is fourteen inches in diameter and from three and one-half to four inches thick, and the smaller, which is the more common, is nine and one-half inches in diameter and three and one-half inches thick. This brand of cheese have a very rich, creamy flavor. The day I visited the market at Utrecht, it was estimated that there were five thousand cheese there. In connection with the cheese market was a cheese exhibition. This gave the government instructors a chance to inspect the cheese from each dairy and to ascertain which place needed their services the most. The judging at the contest was done by two government instructors and an extensive cheese exporter. I was given the privilege of examining the cheese in connection with the judges, and, after the contest, I purchased the two best and the two poorest cheese. In the best cheese very few pinholes were found and the flavor was clean, showing

the purity of the milk. The poorest cheese had a very open body, showing an abnormal gas fermentation. The success of the Hollander might be attributed to three things: First, the selection of good dairy cows; second, the feeding of an abundance of succulent food, and third, the milking and caring of the cows, which is largely done by the women folks.

In traveling through Belgium and Germany I found dairying carried on somewhat as we do it in America, at least as far as the hand separator goes. At a little show I visited at Visi, Belgium, I found no less than seven different makes of hand separators.

Belgium is the home of the limburg cheese, but I found in the district from which it originated that butter-making was claiming attention now more than cheese making. In a little town by the name of Oelde, in Westphalia, Germany, I found two large manufacturers of hand separator machines. The one gave employment to 100 men and they maintained they could not supply the demand. So we see the spread of the hand separator is universal.

Passing from Germany, we visited Denmark. Every person, I presume, who has any interest in the butter business, feels a great desire to visit little Denmark. There is little variety in the surface of Denmark. The highest point in the country is only 550 feet above the sea level. Denmark, however, is nowhere low in the sense in which Holland is. The lay of the land is certainly changing. It rises a little at the sea coast, although it is comparatively flat inland. The country reminded me very much of the Province of Ontario, Canada, as I viewed it for the first time from the car windows. The Danish forests are made up almost exclusively of beech trees, which thrive better in that country than in any other country in Europe. One notable feature of Denmark is that they have no rivers, nor have they any large lakes. The Gudenaa is the longest of their streams, and in this country it would be called a brook. Their climate is cool. To this they may attribute part of their success in dairying.

The Danish government takes an active interest in the dairy business and gives liberal aid to secure instructors. In fact, the whole creamery business of Denmark seems as if it were owned by one individual. Notwithstanding the care and rigid examinations given to the butter, so that it will be suited to the English market, it is not all perfect nor uniform. I had the privilege of examining the butter at one of their semi-monthly government contests, and I must say that there were several lots of very inferior quality. I think, however, it was more uniform than the same quantity of butter exhibited in our country would have been.

Denmark keeps a representative in England all the time looking after the requirements of that market and keeping the makers at home posted. They notify the dairymen and creamerymen by wire to send a tub of butter to the experiment station at Copenhagen. This butter is sent from the regular shipment that goes abroad and is held at Copenhagen ten

days before being scored. This is about the length of time it would take to deliver the butter in England, so if any defects show up in the butter sent to England the same defects would show up in the butter retained at the experiment station at Copenhagen, as they endeavor to keep the temperature of the room where the butter is kept about the same as it would be on the road to England.

The butter is scored by number so that one exhibitor does not know another exhibitor's score. The basis of scoring is a total of fifteen for perfection, instead of 100, as we have it. The highest scoring butter scored twelve. Three of their government experts did the scoring, each one scored in a separate part of the room, then they changed sections, and kept on that way until each one had been over the entire lot. Then the manager found the score by taking the average of the three. The butter that scored the highest had a rich, mild, creamy flavor. The creamerymen are paid the same price for their butter that is exhibited that they get for the rest of the make that is sent to England. The experiment station meets the expense which, of course, is refunded by the government later on.

The export for this little country has run as high as 170,000,000 pounds of butter in a year. They have 1,200 creameries and 300 dairies. Some of the dairies keep as much as 200 or 300 cows each. The cows kept in Denmark are mostly of the Danish type and give a very large flow of milk which is of rather poor quality. Four pounds butter to the hundred is counted a good yield in Denmark. The Danes do not waste much feed. They tether out their cows in most cases. In one sense of the word, they do not advocate balanced rations for feeding. The late Professor Siegleke explained this by saying that all farmers did not understand chemistry and the technical terms were somewhat misleading. They used the term "feed units." For instance, a certain number of pounds of clover hay will equal one unit. At the experiment station they endeavor to find out how much turnips or roots it will take to equal a unit or a certain amount of clover hay, or, in other words, they endeavor to inform a patron how many units of hay or of roots he should feed per cow. They try to make everything very practical. This same rule I might say applies to butter making. The Danish butter maker is not as skilled on the scientific side as the American maker. He works more by rule. Everything pertaining to his business, however, gets his undivided attention. Of the men who have placed the Danish system on its high pedestal, I believe the late Professor Siegleke stands foremost. He was the first to place the dairy business on a scientific basis, and may be styled the founder of the present Danish system.

Following him we have Professor Storch, who has a worldwide reputation as a scientist. He was the first to apply pure cultures to cream ripening, which is now almost universally used by all the leading dairy countries of the world.

Before passing from Denmark, I must say that I believe their success is largely due to the united action of the people, from the government down to the private individual.

In visiting the English market, I might say I have found butter there from the Argentine, Australia, New Zealand, Sweden, Russia, Denmark, United States, Canada and France. The highest selling butter found here was the famous B. F. Bhis French rolls. This brand brought four cents per pound more than any other butter. This is unsalted butter and made from raw cream. It has a very high aroma or nose flavor or showing about as high aroma as the butter at our exhibitions that scores the highest. This butter is put up in two-pound rolls, wrapped in white cloth and sent to market in a wicker basket called "motte."

The next highest butter to this was the Danish selected. Following this in price was the Irish butter, which showed very high nose aroma but was very weak in body, undoubtedly due to churning the cream at too high a temperature. Some excellent butter was found from New Zealand that was six months old and had been kept at a temperature of sixteen degrees F. This butter would grade Western Extras in this country without any difficulty.

I believe the opportunity is good for any large creamery that will furnish clean, mild flavored butter to England to build a reputation on their goods that will enable them to ship there with profit at times.

While I think our Department of Agriculture has given excellent aid to the dairy business of the country, I believe it would be a good thing to have a representative in that market constantly, keeping our producers posted in its requirements.

TWENTY YEARS IN INDIANA CREAMERY BUSINESS.

GEORGE FREESE, NAPPANEE.

It is getting rather late and I will only talk a few minutes. About twenty years ago there was only one creamery in the State of Indiana, and that was in Elkhart County, at Nappanee. I started a creamery there in 1882, and I don't know of any other creamery started before that. I started to use what they called the gauge system. We had a can with a glass on the side, and an inch on that glass was supposed to make about a pound of butter, but after we had bought milk that way for a year or two we found that some would make a pound and some a pound and a half, and the result was our best customers left us and the poor ones stayed by us, and we kept on with that until a man came along with a test, and so we adopted the test system, and for four or five years farmers

took a little interest in it, and we made a fair grade of creamery butter, but it got worse and worse, and the result was that the butter we got from the creamery was almost as bad as the country butter, and that is not so good, especially made without a separator; then we were churning as high as two thousand pounds a day. I think well of the co-operative creamery, but I think the farmer's place is on the farm, and the creamery man, I think he is the man that ought to handle the butter. I think the farmer has enough if he takes care of his work in getting the milk. In about ten years we had six co-operative creameries started near us. Some ran a year, some a year and a half, and the result was every one of them went up in smoke. They sold milk to the creamery and hired a man to go and get the milk. We tried the same thing. We ran about six months, and it cost us about \$100 or \$150 a month, and we quit it. The trouble was we hired a man to haul the milk, but finally we got the farmers to deliver the milk. We have a town about seven miles northwest of us that was west of this station, and the farmers finally talked like they would like to have a separator there, and so we put one in. I jumped on every wagon that came along and would ask him if he would not sell milk, and he says "no, you are thieves." We hammered away until last year we ran up as high as 40,000 pounds. In about the same territory in Iowa, Wisconsin or Minnesota, I will venture to say they will have twenty times as much milk. The pictures illustrated here, of that creamery at Fresno, which has an average of as much as the professor just said it had.

The reason I came here wasn't to talk; it was to learn. I am just as anxious to be taught in this dairy line as any one. I have learned more in the last few days, I think, about dairying than I ever learned before in my life, and the doctor from Indianapolis has given me more light on the subject of cows than I ever learned in all my life, and I think if we can get the farmers to help us along, in a few years we will have as good a dairy State as we have in the Union.

FRIDAY MORNING.

January 23, 1903, 9:30 o'clock.

CARE AND HANDLING OF MILK.

H. N. SLATER, LAFAYETTE.

I received notice from your worthy Secretary a short time ago that I would be expected to give the Indiana Dairy Association a paper on the "Care and Handling of Milk," which I consider a great honor. I will give you some of my methods, which I consider the most essential ones in caring for milk. Many dairy farmers are prosperous, establishing the fact that the dairy industry can be made to yield good profits, while others who seem to have the same opportunity for success fail to find the profitable side. In the endeavor to ascertain the important cause of failure, practical men engaged in the different branches of dairy work have been consulted.

A large number of inquiries were sent out by the Dairy Division to butter and cheese makers and others, requesting them to state what part of dairying in their judgment was in the greatest need of improvement.

The following are some of the replies received:

The delivery of milk by patrons and the proper care prior to delivery. In fact, this one alone will be sufficient to cover all ground, as it is a broad one. Very few referred to the chemical composition of milk or the amount of butter fat it contained.

Milk that is poor in fat naturally, or because it has been adulterated by skimming or watering, does not give the butter or cheese maker much trouble since the introduction of the Babcock test.

Paying for the amount of fat delivered instead of the bulk of milk leaves no strong temptation to water or skim.

A large proportion of our dairy farmers overlook the fundamental principles which should be observed in producing pure milk. This is usually due to lack of appreciation of their importance more than their intentional neglect. In many cases where conditions are promptly improved this danger disappears. Special knowledge is as necessary in conducting the dairy as in other occupations. When one understands scientific principles in dairying the change in milk ceases to be mysterious and the work with dairy instead of being unprofitable and uncertain, as some consider it, may become profitable, interesting and instructive.

The value of milk when delivered to a factory or for sale at any place, depends largely on the care it has received previous to delivery. Its condition as well as fat every dairyman should know. The handling of milk the first few hours after it has been drawn from the cow has a great influence on its quality and the quality of the product made from it. The care of milk seems a simple matter, but better methods in our dairies are of great importance to success and the reputation of our American dairying.

It is to the interest of every patron of a creamery or cheese factory that the milk used should be the best and purest that could be produced. Any one that increases his monthly check by adulterating his milk expects payment for that which he did not deliver and is stealing that amount from others to whom it belongs. But any one who delivers badly contaminated milk to a creamery does even worse. His milk may spoil the entire product of the day and this largely decreases the returns to every patron.

Butter and cheese makers should absolutely refuse to accept milk that is tainted or unfit for use. They must do this in justice to themselves and the patrons who deliver pure milk. The attempt has sometimes been made to estimate the loss by skimming and watering and enormous amounts have been found. But it is not believed that that nearly equals the loss caused by taints or changes in the milk due to neglect. In contracts and agreements the expression "Pure Milk" should not be taken to mean simply milk having a normal chemical composition, but freedom from all unnecessary contamination. The word pure should be understood in its broadest sense. Then what we have to guard against in order to furnish a pure product is the little so-called bacterial life of which the dairies are full, for which milk is the best food. Animals, foods, manures and milk are all hosts or breeding grounds for bacteria. For this reason the dairy is a place where myriads of germs of different kinds are to be found. This we must keep in mind, study persistently to control. The way to prevent their growth and rapid multiplication is by sunlight, pure air, cleanliness and temperature. First see that the cows are kept in a well ventilated barn. What I mean by a well ventilated barn is so constructed that when the doors are opened in the morning you will not have those close stagnant odors which we so often have in our cow stables. Good ventilators are very cheap and any one can have them. Sunlight being a great germ destroyer, we should have all the sunlight possible in our barns. The next thing will be cleanliness. Our cow barns should be kept clean, inside and out, the manure hauled out and all bad odors kept away from it, such as pig pens, chicken coops, etc. Use plenty of clean bedding. We should always milk with dry hands, never wet. Should have our clothing clean. Too much precaution can not be taken during the milking time. As soon as the milk is drawn from the cow it should be taken in the fresh air and run through an aerator of some

kind. Then put in cans and set in cold water and cool down to at least 54 degrees F., as the bacteria will develop very slowly at that temperature. Never mix warm and cold milk together. Keep it at as low a temperature as possible until delivered to the factory. As soon as the skim milk or whey is returned to the farm the cans should be emptied at once and washed, scalded, put out in the pure air and sunlight. All milking utensils should be treated in the same way.

THE HAND SEPARATOR ON THE FARM.

C. B. BENJAMIN, LEROY.

The manufacturers of the separator claim for it a clear profit of \$10 per cow per year, and to prove this claim in the value of a hand separator on the farm let us figure a little.

An average dairy cow should give 165 pounds of butter in a year by the old process gravity system of cream gathering, which should bring eighteen cents per pound, or \$29.70. With the centrifugal separator the same cow will give 200 pounds of butter, worth 20 cents, or \$40, a difference of \$10.30. The question may arise, why the difference in selling price of butter? We can only answer from personal experience, that the separator cream makes a better quality of butter, from the fact that the cream being of the same consistency ripens more evenly; there is much less milk in it than in the skimmed cream; the cream is taken from the milk while it is in a perfectly fresh and sweet condition; no danger of its becoming sour or taking on so many objectionable odors as it might when standing twelve or twenty-four hours before being skimmed.

Ten cows in a herd making a profit of \$10.30 per cow per year would make a profit of \$103, or the cost of a separator made good in one year with a ten-cow dairy.

You may ask if it is not more work to run a separator than to skim milk? Our answer is the hand separator places the work where it belongs and makes lighter the work of the average farmer's wife, because the men are expected to do the separating and care for the skim milk while fresh and warm. This by-product skim milk—is a very important factor in the real value of a separator on the farm. When properly fed, which is immediately after being separated, still warm with the animal heat, it is of the greatest value for young calves and pigs.

This milk we value as being worth to us 20 cents per 100 pounds when fed warm to young, growing pigs. The average cow furnishes us 4,000 pounds of skim milk per year, and at this price it would be worth

\$8. By the old process, when the milk is cold and old it is worth 15 cents per 100 pounds, or \$6 for the 4,000 pounds, making a gain of \$2 in favor of warm separated milk.

Now we have \$12 profit over the old process, and will any one question that the separator has paid for itself and the work of operating, and, like the cow, is still left to repeat the operation from six to ten years with but little outlay for running expenses. And when we consider the labor saved in skimming milk twice a day, and keeping it cool enough to raise the cream in pans, crocks or cans, as the case may be, the separator again has the lead.

We admit there is work in cleaning and caring for a separator, but it is as nothing when compared with the labor necessary to keep clean and pure all the utensils used when skimming milk in the old way.

The butter, as we have before mentioned, made from the separated product, is much better because of a more uniform flavor and texture and more valuable to us because easier made. And in localities where the separator is used in connection with the creamery we think the value would be very great, both to the creamery and patron. Such an improvement over the old method of cream gathering, and you still have your warm milk left to feed upon the farm.

We would, therefore, recommend the use of a cream separator to every dairyman that skims his milk. The first cost of the machine may seem rather expensive to some, but when you consider that it is paying 20 per cent. or more interest on your investment, we, as dairymen, can scarcely afford to lose what this machine will save for us.

The President: We will allow five minutes on this paper for discussion.

The Secretary: The question of hand separators, both for the farmer and the creamery man, is an important one, and I would like to hear from some of the creamery men here.

Mr. Schlosser: Take it along these lines, the objection we would offer for the creamery is the quality of the cream. There is no excuse for the farmer that has a hand cream separator why he should not be able to furnish us a good quality of cream. It all lies with the farmer and not with the machine.

Mr. Drischel: I would like to hear Professor McKay on the question of hand separators in the State of Iowa. I would like to have him explain the position of the farmers at the present time.

Professor McKay: We have the hand separator system in Iowa at the present time and somewhat to our sorrow. The hand separator is all right as far as it goes, but in my experience in scoring butter I am satisfied

that the hand separator is a means of lowering butter quality several points, but still that is not the fault of the hand separator; it is due largely to the man behind the separator. The common understanding among farmers is that a little quantity of cream is easily cared for. If the cream was separated with a hand separator and placed in cool water, I can't see why as good butter can not be made by that system as by any other system. When we changed from the gravity system to the power separator system, we had some difficulty then, probably not as much as at the present time. The difference then was in the body of the butter. When we separated that way, we got a weak body, and for a time it was a question of whether the large separators could make as fine butter as the gravity system, but now the gravity system can not be compared with the power system, and we may reach that time when we can educate the farmers in regard to caring for the cream properly. I don't know what the future will bring forth.

Mr. Holloway: I think that perhaps one fault with the hand separator lies in the sale of them. A man comes to a farmer and is anxious to sell, and he will tell him most anything to sell to him, and, among other things, I have known them to tell them they did not need washing more than about once a week, and such things as that, and that is what makes our cream bad. A great many times they do not wash them as they should be washed, and it is pretty hard to make good butter when the cream comes through a separator that has not been washed for a week.

Mr. Schlosser: There is another objection along this line, and that is they will tell them that the cream should be delivered twice a week. That is one of the greatest objections there is to hand separated cream. In order to make good butter we ought to have cream as often as we have the milk, and if we get the cream sweet and in as good a condition as we get the milk, we can get good butter out of it.

The President: This is an interesting and vital question, but we must hasten along. We will now ask the Committee on Resolutions if they are ready to report.

Mr. Drischel: Mr. Wollen being chairman of the committee, and leaving the city last night, I present the following resolutions for the committee:

RESOLUTIONS.

Resolved, That this Association commend in the highest terms the equipment and work begun in the Dairy Department of Purdue University and that we urge that the members of this Association bring to the

notice of the young people of this State the need for, and the opportunity open to, the person trained for definite position in the dairy business, and to urge upon them the value of a course at Purdue Dairy School.

Resolved, That we commend the work in other departments of the School of Agriculture while recognizing the need of further equipment, particularly in live stock, to make it commensurate with the agricultural interests of our State.

In view of the fact that we have not a representative herd of dairy cattle on the Experimental Farm, therefore be it

Resolved, That we emphatically urge that the Board of Trustees take steps at once to secure a herd of pure-bred dairy cattle that will be a credit to the great State of Indiana.

Resolved, That we are in hearty accord with the Board of Trustees and recommend that the Dairy Department in the Agricultural Building be fully equipped for all dairy purposes.

Resolved, That it is the sense of this Association that the State Legislature appropriate not less than \$1,000 for the necessary use of the State Dairy Association.

Whereas, We have at present on the statute books of Indiana a very excellent pure food law, but which can not be properly enforced on account of not having a laboratory and chemist to analyze the various adulterated and imitation food products; therefore, be it

Resolved, That we recommend that the State Legislature, now in session, appropriate enough money to establish a well equipped laboratory and procure a competent chemist for this important work.

Whereas, It is known that Senator Parks has introduced in the State Senate, now in session, a bill to prohibit the use of oleomargarine in our State institutions; therefore be it

Resolved, That the Indiana State Dairy Association lend all possible support to the Senator in securing the passage of this measure.

Whereas, At the last session of Congress a law was passed imposing a tax of 10 cents per pound on colored oleomargarine, which we all realize has done much for the dairymen, and knowing that the oleomargarine manufacturers are only awaiting a favorable opportunity to secure the repeal of this law; therefore be it

Resolved, That the dairy interests of our State lend all possible support to the officers of the National Dairy Union, who are now striving to prevent the repeal of this law and secure its proper enforcement.

Resolved, That this Association commends the work of the National Department of Agriculture in its enforcement of the oleomargarine and renovated butter laws.

Resolved, That we recommend the awarding of medals or cups for all first prizes hereafter.

Resolved, That we take this opportunity to heartily endorse the candidacy of Mr. E. Sudendorf for superintendent of dairy exhibits for the

World's Fair at St. Louis, and request that those having the power to do so will see the propriety of appointing him to this responsible position.

Resolved, That this Association hold district meetings throughout the State, time and place of which shall be determined by the Executive Committee. Be it further

Resolved, That the secretary of this Association mail a copy of all the resolutions to each member of the present General Assembly, marking such paragraphs as should be of interest to such members. Be it further

Resolved, That the thanks of this Association be tendered to all those who so ably assisted in our entertainment during this meeting.

G. V. WOOLEN, Chairman.

G. P. SWAN, Secretary.

G. W. DRISCHEL.

The President: You have heard the reading of the committee's report, what disposition will you make of it?

Mr. Schlosser: I move that the report be adopted.

The President: As a whole or by section?

Mr. Schlosser: As a whole.

Report adopted.

The President: We have next the Committee on Essays.

Mr. Gurler: Mr. President, we had an interesting time with these essays. We took them and went over each one by itself, and then we had an argument of two hours before we decided whose was the best, so you can see there was merit in more than one of them. When we came to vote who should be first, it stood two and one, but the first prize we awarded to No. 4 (Mrs. Lamont, Joppa) and the second prize to No. 1 (J. M. Hack, Crown Point).

Mr. Schlosser: I move that the report be accepted.

The President: I would suggest a little further that these essays become a part of the proceedings.

Motion carried.

The President: Is the Committee on Nominations ready to report?

Your Committee on Nominations beg to report the following:

President, Samuel Schlosser, Plymouth.

Vice-President, G. V. Woolen, Indianapolis.

Secretary-Treasurer, H. E. Van Norman, Lafayette.

Executive Committee, the officers and Silas Holloway, North Manchester, and T. C. Burnside, Liberty.

Respectfully submitted,

CHAS. LAMONT,

SAM B. WOODS,

HENRY SCHLOSSER.

Mr. Argo: I move that the committee's report be received.

Motion carried.

The President: I believe that concludes the committee work, except appointing the Legislative Committee. Last year we had a Legislative Committee appointed, and I take the privilege this year to reorganize that committee. As it stands now it is reorganized and enlarged. I will appoint Mr. Burnside as chairman of that committee, and Dr. Woolen as secretary, and members Mr. Swan, Mr. Sam Schlosser, Mr. Drischel, Mr. Johnson, Mr. Billingsley and Mr. Hill, making a committee of eight. Take notice, this committee must do their work, and do it now. Don't wait for the last week of the Legislature. The chairman will try and have a meeting of that committee tomorrow to get ready to go to work. He promised me he would try and be in Indianapolis tomorrow, and he would try and get that committee together, and we want each member of this Association to consider themselves a committee of one to work on their individual Representative from their county. We feel that we have got to do a personal work to succeed in this legislative work as we should.

I don't know but what it would be in order as your retiring President to say a word in regard to Purdue. Purdue is an institution that the citizens of the farming portion of the great State of Indiana do not realize what they have in Purdue. They do not realize what they have in the faculty that is at Purdue, that Purdue is in charge of, and we feel that we, as a Dairy Association, ought to return to them our most sincere thanks for the courtesy they have shown us in this meeting. I want, as your President, to extend to you my sincere and heartfelt thanks for the courtesy you have shown me. I feel that this has been a record breaker meeting of the Dairy Association of the State of Indiana. [Applause.]

Mr. Burnside: I want to say what I have to say sitting on this chair. I know you will excuse me for not getting up. I went to bed night before last, and I haven't been out of my room since. I went away from here suffering with neuralgia, and if any of you know how that feels, you know how I am suffering.

What I want to get at, I understand from the President of this organization, a year ago I was a member of the Legislative Committee, and if I understand him aright I was chairman of that committee. Now, to square myself with this organization, I want to say now that this is the first time I have ever had any intimation whatever that I was a member of the Legislative Committee, and secondly, I have not shown my hand at all, and I know, of course, under these circumstances this organization will excuse me for not taking any interest in the matter, and I have no desire to be chairman of the Legislative Committee for this reason: In the first place, it not only takes time, but takes money, but I am perfectly willing to serve on that committee this year, and I will say if the other members of this committee will give as much time as I will, we will do some good for the dairy interests of Indiana. I would like after the meeting adjourns to meet the members of that committee.

Mr. Drischel: Mr. President—As a member of that committee, I want to go further than that; recognizing the fact and being on the committee some four years ago, and knowing the results that we obtained at that time, we want the action of the farmers, the dairymen, and the creamerymen to help us in this case. As Mr. Burnside says, we have got to go there and present this matter, pay our own expense, and we want you gentlemen here to present this matter to your Representatives and Senators. Impregnate every man with the idea that this dairy industry is growing up both in the school here and in the farms and in town, and assist us in that line of thought, which will go a great ways. You can make personal pleas to your Representatives and Senators and help us a great deal that way, and announce the fact that the dairy industry is going to be an important factor in this State. In the meeting before the Ways and Means Committee of the Legislature there will be able people favoring the horticultural industries and presenting their pleas for an appropriation. The Horticultural Association gets one thousand dollars, and we get the mere pittance of five hundred dollars. On that score I think it is an injustice. With the horticulturists the fruit produced in the fall is in sixty days after maturity barreled and shipped off. There is no taxation on that, but there is with us, and also on the cattle or dairy cow, and the creameries cost from \$500 up to \$100,000. In my county there is a capitalized or incorporated creamery of \$100,000.

Mr. Burnside: Just one more thing I would like to say in connection with that Legislative Committee: There is a bill before the Legislature now which was presented by Mr. Parks, of Marshall County, which is a bill to prohibit the sale of oleomargarine in the public institutions in the State of Indiana, and I believe that committee would like to know the pleasure of this organization in regard to that bill whether we ought to go to Indianapolis and push that bill or not.

The President: A motion is in order to incorporate that in a resolution.

Mr. Schlosser: Mr. Chairman—In regard to this bill of Mr. Parks', of Marshall County, he has promised me time and again that he will do anything reasonable for the dairy interests of this State, provided we can give him proper support, and he wanted to know what help the State Dairy Association could give him if he would introduce a measure of this kind, or any other measure looking to our interests, and we should certainly adopt a strong resolution giving him the assurance that we heartily indorse his action in this matter.

Mr. Drischel: I want to cite you the facts. We were seeking business with the East Haven Asylum, at Richmond. I was informed by the Superintendent of that institution four or five years ago that he thought it was better for the State to buy oleo, because it was cheaper and was just as good as butter. I did not like the insinuation; in fact, I got a little indignant. And that is one of the instances Mr. Schlosser alluded to, that we embrace that important resolution in the resolution we have.

The President: Mr. Schlosser, draw the resolution that you like.

Mr. Schlosser: I would like to say another word on this question. Senator Parks has been making a study of the institutions of the State, and he told me there was not a state institution that was eating butter but one, and that used it simply because they had a few cows, and they eat whatever these cows produce. That is the condition of affairs in the State of Indiana, and you can also realize what they feed us on in the hotels in the State of Indiana; we found that out in Lafayette. I believe Indiana is able to produce enough butter to feed its own inhabitants.

Mr. Burnside: If we send that Legislative Committee down to Indianapolis with a strong resolution from this organization we will do them some good, for this reason, for we intend to tell them how many dairy-men there are in Indiana, which will mean something.

The President: We will now, while they are preparing this resolution, have the prize essay read.

FIRST PRIZE ESSAY.

THE COST OF PRODUCTION OF A SMALL BUTTER-MAKING HERD.

MRS. CHAS. LAMONT, JOPPA.

We dairy folks, as a rule, are apt to take into too little consideration what it costs us to produce our milk and butter. If we are receiving a fair weekly income from our cows, we are satisfied to deduct the price of the mill feed and count what is left as mainly profit, as most of the feed is grown on the farm.

But the home-grown feed also has a market value, and at such value must be counted against the herd, so it is only in the difference between the actual cost of the cow's maintenance and the market price of her product wherein lies our success or failure as cow keepers.

In these days when the best dairy papers in the country can be had for a dollar a year, more or less filled with accounts of the methods and achievements of our most prominent experts and dairymen, as well as of those less successful; no one of us need be lacking in knowledge of our chosen profession, even though we may be denied the privilege of a special dairy education. The great difference in dairymen is well shown by the investigations being carried on by Hoards' Dairyman at the present time and for a year past among the creamery patrons of several States, where intelligent dairymen are reported as receiving from \$1.50 to \$2.00 or over for every dollar expended on feed, whilst others who give to their dairies indifferent study or care are receiving little more for their dairy products than the food cost, and in some cases barely half as much. While we may pride ourselves that we do not belong to the latter class, it is best to be quite sure of it.

Our herd consists at present of ten Jersey cows and heifers, none of them registered, but headed by an A. J. C. C. sire. Our butter is sold retail to private customers.

We consider silage the most economical of all food stuffs, as well as the least trouble to feed. Bran we find the most expensive, and we wish for the day when a satisfactory substitute for it can be produced on our farms. But this far along anything to take the place of bran seems to be in the experimental stage in Indiana, and we find that to dispense with it, even when the cows are on pasture, generally results in a loss of butter of more value than the cost of the bran.

We began January 4th last to keep account by weight of all the feed our ten cows ate in seven days, with these results: The average daily ration fed in two feeds was 40 pounds silage, 5 pounds bran, 5 pounds clover hay and 6 pounds corn stover, or all the stover they would eat up

clean; the bran was fed according to quantity of milk, 6 pounds being the most fed to any one cow. The cost of one week's feed for all was: Silage, \$3.50; bran, \$2.85; clover hay, \$1.47; stover, 42 cents. Total, \$8.24.

The price of silage was estimated at \$2.50 per ton; bran, \$16; clover hay, \$6; stover, \$2. The butter sold during the seven days was 58 pounds, which at 29 cents a pound amounted to \$16.82 for the week; and deducting the cost of production left \$8.58, or \$2.04 for each dollar expended on feed. The amount of milk produced was 1,147 pounds; food cost of 100 pounds milk, 72 cents; for 1 pound butter, 14½ cents; estimated value of skim milk, at 20 cents per 100, \$2. We are aware the amount of milk and butter is small, and only the good price received for the finished product leaves us a fair margin of profit.

However, our herd then numbering 11 cows, produced an average of 290 pounds butter during the past year, which sold for \$77.82 for each cow, and counting the cost of food for a year at \$38.60, left us \$39.22. Skim milk we count worth \$10 a cow more, leaving the heifer calves and manure against the cost of labor. Then we must remember there is a wide difference between selling the crops off the farm and in selling them to the cow at market value to be returned to the land in the shape of the manure wherewith to feed next year's corn crop. Then again, by the aid of the skim milk we can, with careful feeding, put our fat hogs on the market twice each year weighing anywhere from 200 to 240 pounds at from five to six months old, a result we could not pretend to reap without the skim milk. Also we must mention the heifer calves growing into cows at an early age to enlarge and improve our dairy herd. We have said nothing of the weekly trips through all weather to sell our produce, nor of all the trials and vexations which attend dairying, but with all these things considered we think we are fairly well compensated by the cow, both for her food and for our trouble.

The Secretary: I can not help saying a word. I have wanted for two years to offer a prize for such an essay, but until this year I was never successful. It seems to me that an essay like that is worth a great deal to this Association. It seems to me there is one of the most instructive papers that has been presented before this Association, and we know the writer of that paper has been a prize winner in making dairy butter.

SECOND PRIZE ESSAY.

THE COST OF A POUND OF BUTTER.

J. M. HACK, CROWN POINT.

As my herd of cows are at present all far along in milk, I thought it would perhaps not be a fair test to determine the cost of a pound of butter at the present time. I therefore take it upon myself to give you a statement of how we managed our herd and the results obtained for the year 1902. This herd consisted of twelve cows, high grade Jerseys. For a winter ration, first in morning they got a feed of clover hay, then before milking give feed of grain consisting of corn and oats ground as follows: Two bushels of oats and one bushel of corn, mixed with an equal amount of bran in bulk, with a sprinkling of salt and enough old process oil cake meal so that each cow would receive from three-fourths to one pound of oil cake during the day. Then cows giving the largest flow of milk get of this grain ration about ten pounds per day; those not giving so much milk get less; grain fed in two feeds, night and morning before milking. About 10 or 11 o'clock they are turned out in covered yard, where they have access to warm water to drink. After stables were cleaned and put in order they get for the noon meal shredded corn stover. Are never out to exceed one hour per day when weather is cold; if very cold not more than one-half hour.

For the evening meal they have before we milk the balance of grain ration, and after milking is done they get a feed of corn silage, one good bushel basket full to each cow. For the past five years we have fed a small grain ration twice a day through the summer months, and last summer a feed of clover hay at night during the entire season. After July 15th we reopened the silo and each cow received her regular ration of silage in the morning after milking was done. Now for results: This herd made on an average 327 and a fraction pounds of merchantable butter each, that sold at 25 cents per pound, and owing to all kinds of cow feed being very high for the year 1902, we estimate the cost of keeping our cows at \$40 each for the year, which we think is very liberal. Therefore, you see this butter cost us to produce it a small fraction over 12¼ cents per pound.

The President: As we expect to have a dairy convention next year, or the latter part of this year, we want some place to go. Where do you want it? What town? What town, under the conditions, wants to invite the State Dairy Association to meet with them? We hear Plymouth mentioned; is there any other point? Angola is also mentioned.

The Secretary: I will say that the rooms here at the University are open and available at any time the Association wants to come here. I feel we did not get the support from the dairy people of this community that would warrant us in inviting you to come back next year, and I believe we can do more good by going elsewhere for another meeting.

Mr. Schlosser: As the name of Plymouth has been mentioned, this Association may be interested in the size of the town, as to railroad conditions and the hotel accommodations. As far as the city is concerned, Plymouth is big enough to accommodate this Association. It is the county seat of Marshall County; it has three railroad lines, viz., the Lake Erie and Western, Vandalia, and also the Pennsylvania. It is one of the nicest towns in northern Indiana. This Association has never been in the northern part of the State. Plymouth is located in Marshall County, in the central northern part, and we people are willing to guarantee this Association will have no trouble in securing all that is asked for, and for that reason we are here to ask for the next annual convention.

The President: This matter is referred to the Executive Committee with power to act. I understand that President Stone is in the room. We would like to have a few words from the President of Purdue.

Mr. Stone: If you turn this meeting over to me you are likely to have a long session.

The President: Do you see this mallet?

Mr. Stone: You can't make much impression on (S)tone with a wooden mallet.

Well, gentlemen and ladies, I am glad of even a few moments to come in here and speak on the subject of Purdue University. If it be your wish, as I understand it, that I may devote a few moments of your session to that subject, I shall be glad to take advantage of that opportunity for this reason: I find that Purdue University as an institution of instruction is not well understood by the people of the State. Those who have clear ideas of what an institution of learning is, have largely derived their ideas from the older class of colleges, with which Purdue University has very little similarity, and once one has visited Purdue University or some other institution of similar character they will have a clear conception of what we are trying to do here and how we are trying to do it.

Purdue University represents a new kind of education that has been developing itself slowly, but in recent years with great rapidity throughout the country. Industrial education. Some people say that is not education at all; that there is no education in training men for their business. Some people resent that thought. I do, myself, because I believe we strive to educate the head and the eye and the hand to do the work

he will have to do, and to make a good citizen is the highest kind of education. And something of that is what we are trying to do at Purdue University.

This institution was founded by an Act of Congress in 1862. The Act as passed by Congress at that time provided for the establishment in every State of the Union which would accept the conditions proposed by the bill, according to two terms of the Act, not schools, but colleges giving "instruction in agriculture and the mechanic arts." These are the exact words of the bill. Based on that Act of Congress, they established in every State in the Union colleges giving instruction in agriculture and the mechanic arts, which two terms include all the industries based on agriculture and the mechanical arts. That is what Purdue is trying to do. It is giving instruction, so far as it is able at the present time, in all of the industrial arts, including agriculture. The process of doing that emphasizes a new kind of educational method. The laboratory method, because it is not enough to teach boys out of books. He has to deal with the living thing, or if he has to deal with the machine or tool, his training must include actual handling of that living thing or tool. And so the education in the industrial arts involves laboratory work. It necessitates a large and complete equipment for instruction and laboratory work in the industrial arts.

Purdue has grown in the last four years. If your business increased 80 per cent. in four years' time, you will see what that means. You would have to increase the size of your plant. You would have to increase the number of your managers and workmen. That would mean that you would have to expend in your business pretty nearly 80 per cent. more money. Well, Purdue has been growing to the extent of 80 per cent. in attendance within four years. It has increased 80 per cent. in attendance in four years, and its income has been increased 15 per cent. That is the big thing about the college. So that today we stand facing that condition at Purdue, an increase of 80 per cent. in attendance and an increase of only 15 per cent. in the income, and so you can see where that leaves us at this time with regard to taking care of our students. We have over 1,300 students at this time, and we have very little more means to take care of them with than when we had 750 students a few years ago. That is one of the problems; one of the needs of the institution. I say this to show you that there is a demand on the part of the public for this kind of education which Purdue University is giving. The demand is not equally distributed. The greater part of the students in this institution are to be found in the engineering school. I think that is not altogether a wise demand. I don't know that it would be necessary or advisable to have less demand for the engineering education at this time, but I believe the greatest demand of all ought to come for the agricultural education. There is no field of industry in which training counts for so much as it does there, and there is no field of industry in which

training is so necessary. Let me suggest one thought: A few years ago, when some of the older men here present were boys, it was possible to go into any kind of industry as an apprentice and by slow effort and hard knocks learn about that business, so that by the time a man grew up, he would be well versed in that business. Now, that is not possible today. Business is done on a different basis altogether. This school proposes to give a man in three or four years training in these different branches which, if he relied upon his own efforts, would take him a lifetime to learn. The same thing is true of the farm. Here is a young man that wishes to run a farm, he can learn more in twelve weeks' time under a competent instructor than he could learn in twelve years by knocking around. Take it in the dairy business. He can learn more about the milk and the handling of the products here in ten weeks than he could learn in ten years outside. The value of a school of industrial training is apparent. The man who fails to recognize the value of an industrial training is behind the times—does not understand the situation.

I referred a moment ago to the relative demand for this training as shown by the students who come to Purdue University. Last year in the entire State of Indiana, less than 125 young men sought training of any kind in farming. I don't know how many thousands of young men there are in this State who live on farms or growing up in connection with farms or who hope to spend their lives on farms, but out of that number less than 125 last year sought any kind of training in the line of their business, so that when I say the demand for training in the line of farming in the State of Indiana is low and small, I am stating the facts. We do not mean the students who come to Purdue University. It means all students of all kinds in the State of Indiana who sought agricultural training. Now, that ought not be so. Here is a great State. The agricultural business in this State is the greatest business here. There is no State in the Union that is so favored, and what are they thinking of if they expect to maintain their position among other States and among other industries if they neglect this fundamental idea at the present time, the training in the line of their business? I don't say that reproachfully; I say it regretfully. I wish there might have been ten thousand farmer boys in this State last year who had such an idea of the value of training in their business that they had sought some one, some grade of special training to help their work. I wish there would have been ten thousand of them. We want to see students in this line. I am not concerned about the Engineering Departments of this University. We have had trouble to keep people from overrunning us there. We have the doors wide open in the School of Agriculture, and we are doing everything we can think of to make it profitable and desirable for young men and women to enter this department, and the only thing we feel the lack of mostly at this time is the lack of students. This building ought to be crowded twelve months of the year with young men and women who

want to avail themselves of some of the opportunities within their grasp. I was talking to the Tippecanoe County Farmers' Institute; they come here and discuss agricultural matters, and I said to them, "How many students from Tippecanoe County are in the School of Agriculture?" but they did not know. Two is all. One is the son of a college man and one is the son of a farmer. Now, why is it? I talk to people and they say "you ought to have more professors and more buildings." Why, bless you, put yourself in my position. If you have a family of thirteen children, you can't starve twelve of them in order to send the other fellow to school, can you? You have to have some reasonable distribution. We are trying to make a start in this business here. We have a pretty good building. We spent about eighty thousand dollars in this department in the last two years, and we would like to see a few more students come up and fill the building before we go to building an addition. I am prepared to go to the Legislature and ask for ten more of them, but what are they good for if students do not come to it? One hundred and twenty-five students trained in agriculture in the State of Indiana does not represent what the people ought to be doing. If you tell me that we need more things and lots of them, I am going to ask you what for. If the students are demanding them, where are the students? Where are they? There were only 125 of them in the State of Indiana last year, and fewer this year who are seeking agricultural training. Do you know what we are doing here? Do you know what courses we are offering? You know what the facilities are in this institution. You know that the farmer can come here for three months in the winter time and get training that will make a cash return to him inside of a year double what his expenses were.

I didn't come in to start up a controversy or discussion, but I think if you will examine into it, that the agricultural men go to more instructors than any other students; they are the ones who have the greatest variety of courses; they are the ones whose expenses are the cheapest of any one in the University. We are doing all we can for them, and we want more than 125 next year taking the course in agriculture.

Mr. Maish: I wish to ask if the essays that were read are to be discussed in any way?

The President: We won't have time to discuss them.

Music by Purdue University Mandolin Club.

The President: We will now ask Mr. Gurler for his talk on

"THE INDIVIDUALITY OF THE DAIRY COW."

H. B. GURLER, DE KALB, ILLINOIS.

In the annual records which are summarized in the following table I have put the price of skim milk at twenty cents. Before that, I had put it at twenty-five cents per hundred, applying an old rule that skim milk is worth half as much per hundred pounds as corn is worth per bushel, so that on these figures I have made the price pretty low, and where skim milk is used intelligently it is worth more money than that. You will notice that the calf and the manure are not taken into consideration. It is an uncertain quantity about what the calf is worth; it depends upon what the cow is and what the sire of the calf is, and I felt it was wiser to leave the calf out entirely, and let everybody put his own value; and the same with the manure.

Then comes the cost of the feed. I fed some gluten meal from the glucose factory; I fed some from the distillery at Peoria, and got my protein cheaper in that form than in any other form, but I struck one carload that had something wrong about it; it was not palatable, and I had some sharp correspondence about it. The manager thought I didn't know what I was talking about, but he found out that I did.

That reminds me, I want to talk a moment on the question of palatability. It is the first thing to be thought of in feeding. There is any amount of nitrogen in the atmosphere, and it might as well remain there as to be in an unpalatable feed as far as the cow is concerned. This question is not sufficiently recognized. Chemists can not tell about the palatability of food. They know how to analyze, and that is as far as they can go, but they can't make the cow eat it and like it.

Hay was charged at \$8 per ton and the corn silage at \$1.50 per ton. For last year perhaps that price was a little low, but even at that I can tell you there is a good profit in growing corn for silage, if we grow fifteen tons to the acre, as every one should. You see there is a gross income of \$22.50 per acre, and if we allow \$10 for interest and the growing of it, you have \$12.50 left.

That will pay interest on \$200 land and not many of us are asking \$200 an acre for our land. It is hard for us to put a market value on silage, as it is not a marketable food, but I have given the farm a profit for growing it, and I think that is sufficient.

Then I charge up for labor \$12.50 per cow. That was a basis that I figured out ten or twelve years ago when I made milk for the creamery. It may not be strictly accurate. Perhaps labor is a little higher

now, but if you think that is not right, you must make your own allowance, as you have got to do with a great many of these things. No man can make an arbitrary rule that will fit all of you.

That left an average profit of \$19.98 after paying for the feed and \$12.50 for labor. Many people do not figure the labor in. Of course they would have \$32.48 for profit.

Now, out of those fifty cows I picked out nine. I picked out the four poorest cows in the stable, then I picked out a cow that would be just about on the dead line, as you might term it; she would barely squeeze through and not get me into debt. Then I picked out four of the better cows—not the best ones, but pretty good average. You see what I wanted was to get an average of the whole fifty in that nine, and to show you how near I reached the object, the average of the fifty cows was 297.7 pounds of butter, while the average of the nine that I am going to talk about was 295.3 pounds.

NUMBER OF COW.	Weight of Milk, Pounds.	Per Cent. of Butter Fat.	Total Fat, Pounds.	Weight of Butter, Pounds.	Price Per Pound.	Value of Butter.	Weight of Skim Milk.	Price Per 100 Pounds.	Value of Skim Milk.	Total Income.	Cost of Feed.	Cost of Labor.	Profit.	Loss.
Average of 50 cows.....	5,708	4.47	255.2	287.7	\$0 20	\$59 54	5,453	\$0 25	\$14 00	\$73 57	\$41 06	\$12 50	\$19 98	.....
244	2,882.5	4.87	116.13	135.48	20	27 09	2,266	25	5 66	32 75	31 23	12 50	.....	\$11 00
154	3,619	4.51	163.40	190.63	20	38 12	3,494	25	8 64	46 76	41 06	12 50	.....	6 80
44	3,899	4.58	155.94	181.93	20	36 86	4,243	25	8 10	44 48	37 82	12 50	.....	5 34
72	2,661	5.06	134.97	157.46	20	31 49	2,526	25	6 31	37 80	26 45	12 50	.....	1 15
308	4,617	3.83	177.16	206.68	20	41 43	4,440	25	11 03	52 36	39 32	12 50	44	.....
184	7,997	4.77	382.04	445.71	20	89 14	7,615	25	19 14	108 28	44 32	12 50	51 46	.....
262	9,297	4.03	372.56	434.65	20	86 93	8,900	25	22 09	109 02	44 72	12 50	51 80	.....
283	10,151	3.68	374.76	436.75	20	87 35	9,777	25	24 44	111 79	44 72	12 50	54 57	.....
129	8,949	4.52	406.73	472.18	20	94 43	8,545	25	21 36	115 80	46 06	12 50	57 24	.....
Average 4 best cows	9,098	4.25	384	447.32	\$0 20	\$89 46	8,709	\$0 25	\$21 76	\$111 22	\$44 95	\$12 50	\$53 77	.....
Average 4 poorest cows	3,020	4.75	142.6	166.4	20	33 28	2,881	25	7 20	40 48	33 96	12 50	.....	\$5 98
Average of 9 cows	5,897	4.43	253.5	293.7	20	59 14	5,644	25	14 11	73 25	39 46	12 50	21 25	.....

There is one thing I want to drive home to you, and that is that a two hundred-pound cow is right on the dead line. I do not live at my farm. I have to pay for all the labor. I might have a hundred such cows, and I would be none the better for having them; indeed, I would be worse off, because it would annoy me until I should probably grow ugly trying to get something out of those cows and not succeeding.

We can't talk about cows without talking about the capacity, and that reminds me of a story. A lady in our township has a little daughter in school who didn't get along, and the mother was worried and went to the teacher and asked her, "What is the matter?" The teacher replied, "Your daughter hasn't any capacity." "Well," she says, "I'll have her father go right down town and buy one." Now, you can't buy your capacity for cows any better than for girls, and there will be no profit in the cow that hasn't capacity.

The work was looked after by Mr. Glover, who was doing field work for the Illinois Experiment Station. He came to my farm once in seven weeks' took a sample of the milk and tested it himself. He looked closely after what was being fed to each cow; the feed was not weighed constantly, but the milk was weighed at every milking and an accurate record kept. If there is anything that isn't just right here, it must be on the feed line, but Mr. Glover is a very intelligent, conservative man.

Question: How did you get the cost of labor?

Mr. Gurler: I figured that out several years ago, probably fifteen or twenty, and I have forgotten now the details of my figuring.

Question: Wasn't there any loss on the value of the cow every year?

Mr. Gurler: There has been on the average cow, for the last three or four years, until the last year. Last spring I was able to buy new cows to replace the culls out of my herd, with the money the cull brought, but, as a rule, there is a loss in the exchange. You can't get so much for a cow for beef as you can for a fresh cow, as a rule, and the better the cow the more loss, and that suggests another point. No one can afford to feed a dry cow. When you make up your mind you are going to dispose of a cow, get a little flesh on her and get rid of her as soon as you can after you have done milking her.

Question: That is all right for the milkman, but not for the breeder.

Mr. Gurler: I am not talking for breeders.

Question: Don't your cows ever get old, so they have to stop breeding and milking?

Mr. Gurler: Yes, my cows wear their teeth all out sometimes, but I have got a registered cow in my herd now that is thirteen years old and she is doing mighty good work. She made 400 pounds of butter for her first year's work as a heifer. You may be sure I am not going to dispose of that kind of a cow. I will keep her when her teeth are all gone. These good cows are liable to live to a good old age, if you take care of them.

Question: What breed of cows have you, Mr. Gurler?

Mr. Gurler: Registered Guernseys, registered Jerseys, and registered Holsteins; but most of my cows are grades—crosses. I am not going to get into any breed contest. I am talking about the individuality of the cow.

Question: Do you depend on raising your own cows or buying them?

Mr. Gurler: I raise all the good heifer calves, but I have to buy a good many cows besides, and that is what breaks my heart, because I can't buy such cows as I want. Why, gentlemen, my two-year-old heifers, with their first calves, are giving fifteen per cent. more milk than the average cow I can go out and buy.

Question: Suppose you have a cow on your farm that makes 200 pounds of butter the first year. What do you do with such a cow? Do you summarily dispose of her, or do you try her another year?

Mr. Gurler: It is not under all conditions fair to judge a cow from one year's work. You take the record of the cow's work with her general appearances, her make-up, and you are pretty safe. A man can tell pretty well whether a cow has done her best or not, if he is watching her.

Question: If she indicates a capacity that she has not used, you are encouraged to hold onto her?

Mr. Gurler: Yes; when I bought the farm I am now on, in 1868, everything had been carried off for twelve years. I just worked for nothing, like working with 200-pound cows. I was forced to go into some other line of work. Now, here is a point that comes to my mind. You see on that chart the value of skim milk for the four best cows; the average value was \$21.76, and the four poorest cows \$7.20. There was a difference of \$14.56 in the value of the skim milk.

Question: In regard to the value of skim milk, how about feeding it back to the cows?

Mr. Gurler: Have you ever practiced that, and is it profitable?

A Member: I have; yes. I never figured that thing out to see whether there was a profit, but I know I can increase the flow of milk very nicely by feeding back to the cow sweet skim milk. I can't tell whether I get more for the skim milk fed to the pigs than if fed to the cows.

Mr. Gurler: Here is a matter of the rations that I fed those cows. I aimed to work to the German standard, that is one to five and a half, and that ration that was fed for the year ending the first of September last was one of protein to five and a half carbo-hydrates and fat reduced to carbo-hydrates. I don't think I'd better touch that feeding question any further. I dislike always to preach where there is some fellow looking on that I know can do better. I want to mention here again that question of palatability, for there is no question of greater importance. We may have a feed that will analyze all right, but if it is damaged in any way, or for any reason the cow don't like it, don't want more of it, don't eat it with a good relish, they won't do their best. You are at fault, not the cow. Now, there is another point: There is a question in my mind whether skim milk is not really entitled to all the increase that you can get from feeding grain feeds with it, over what you get feeding the grain alone. Just go home and think about that. I don't want to deceive myself, nor you, but it is hard to get a feed that will take the place of skim milk.

A Member: I believe the gentleman's figures of the value of skim milk are substantially correct, and that skim milk is worth more fed to pigs than anything else. I believe his figures as to labor are also substantially correct.

Question: Supposing you fed that skim milk to the calf, would it be worth as much as you say?

Mr. Gurler: The calf does not show up here at all; but if fed to calf it would be worth more. To a calf fed intelligently, skim milk is certainly worth 25 cents a hundred.

Question: It makes a difference what kind of a calf?

Mr. Gurler: Yes, and it makes a difference what kind of a man. I told you that there is more difference in the men that feed the calves than there is in the calves.

Question: What amount of grain do you feed your cattle on the average?

Mr. Gurler: The average cow has been getting this winter a ration of ten quarts per day, composed of one part gluten meal—mind you, that is not gluten meal analyzing 33 per cent. protein. The gluten feed has the bran ground with it. My ration this winter has been ten quarts per day, composed of one part gluten meal, one part wheat bran, three parts corn meal, with what corn silage and hay they would eat. This hay has been some of the time alfalfa, some of the time oat hay, and clover and timothy hay. This combination of grain weighs just about a pound to the quart. The wheat bran weighed 17 pounds per bushel; the corn meal 50 pounds per bushel, the gluten meal 61 pounds per bushel.

Question: Then that would make more than a pound to the quart.

Mr. Gurler: It was not equal parts, you would have to take a lead pencil for that.

Question: Wasn't that feeding a good deal of corn?

Mr. Gurler: It figured out a balance ration, one to five and a half, and that is what I was aiming for. With this they were fed about forty pounds of silage.

Question: Was the silage well eared?

Mr. Gurler: I don't know as you would call it well eared. There was just about twice the amount of seed planted that you would put in for a grain crop. In this barn with the fifty cows there were six cows among that fifty that made less than 200 pounds of butter per year, and there were seven that made over 400 pounds per year. The average of those seven was $440\frac{1}{4}$ pounds. Those poorest cows averaged 173.7 pounds per cow. Two hundred pounds is the dead line down at my place. Unless I am satisfied that a cow can do better in the future I dispose of her.

Question: Were those six cows some of your best heifer cows, or some you had to go out and buy?

Mr. Gurler: Most of those were cows I bought.

Question: Do you mean the best ones?

Mr. Gurler: Yes. There was a period that I did not raise any heifer calves, but I have got a nice lot of young heifers coming up now.

Question: Do you find gluten meal better feed than distillery grain?

Mr. Gurler: I can buy protein cheaper in distillery, kiln dried feed than in gluten meal, but I was sidetracked by getting some that was not good. The old saying that it costs no more to keep a good cow than it does a poor one is not always correct, but that point is of minor importance. We never have learned why it is that one cow will make 50 or even 100 per cent. more from the same feed than another cow, and it isn't necessary that we should know. But certainly in the matter of care I am safe in saying it costs no more to care for a good cow than a poor one, but it is certainly more satisfactory to work with profitable cows than with poor ones.

You have all heard the saying that the bull is half the herd. The bull is more than half the herd, because the females are more likely to be like the sire, and I care just as much to know about the record of the grandmother on the sire's side as I do the mother's record. The governor says it is more important, and I believe it. I say it is as important to know the butter record of the heifer calves' own dam.

Now, from a strict business point of view I must talk a little. What other business is there in the world that would stand such abuse as is often given to this business of dairying? The lack of business methods which are generally applied to the dairying business is such that no manufacturing business would stand it at all without being driven into bankruptcy in six months. We have got in our town large wire factories that belong to the U. S. Steel Company, and I have had men tell me how they are running the business of that corporation. I happen to know that that plant in Dekalb is producing wire at less cost than any other in the combine, and the key to the situation is to cheapen the cost of producing. If I could have as many cows as I have got now, and have each one of them do what these four best cows are doing, I would be rich enough to quit business in a few years.

It seems to me that there are greater opportunities for the young men that are coming up now and are getting an agricultural education, than in any other field in this country. About a year and a half ago, there was an attorney came to my farm from Detroit. He had been down on the Atlantic coast, down to——(that 12-cent-a-quart man in New Jersey), and he came out to my farm for some ideas. He said to me: "I have got a son twenty-five years of age that I educated for the bar, and the young man commenced to practice law and he didn't like it; he stole away to some agricultural college and he is bound to run his father's 400-acre farm, twelve miles out of Detroit." And the father was looking around the country for ideas. He says: "I am going to fit up that farm and let that young man run it," and the last remark he made before driving out of my yard was: "Mr. Gurler, there are greater opportunities on the farm than in any of the professions." It was a professional man who said that, and there is no question in my mind but what that is true. If the young men here will go to studying

and thinking along that line, by the time they get up to my age there will be nobody in this country looking down on them; every profession will be looking up to them, and they will think, "You are the lords of creation," and you will be—but you have got to put your mind into it.

Mr. Slater: I have attended a great many dairy meetings. I have been in dairy meetings in Wisconsin, Iowa and Minnesota, but I never attended a meeting that was of more interest than this meeting has been. In Iowa and Minnesota and Wisconsin they may have different methods and may be further advanced in butter making, but what were they ten years ago? They could not compare with you today ten years ago. You have climate here that beats ours all to pieces, and you have better water here. We have no such water in Wisconsin. What you want to be careful in is when you get a good butter maker and good dairyman, don't let him go, like Minnesota has with Professor McKay. Some of the best butter makers Minnesota have we stole from Professor McKay. We have stole so many of them we think we can beat Iowa any time.

Mr. Schlosser: I would like to ask Mr. Slater if he considers one-sixth a large overrun of butter?

Mr. Slater: Yes, I would consider it large. That is pretty heavy.

Mr. Wood: I would like to make the report of the Auditing Committee. We examined the report of the Secretary and found it correct, and I move that it be adopted.

Motion carried.

Mr. Schlosser: I have another resolution prepared:

Whereas, There are funds needed for immediate use by the Legislative Committee, therefore I move you that the Secretary of this Association mail a request to each and every creamery and cheese factory in the State, also to such influential private dairymen as he may know, asking for an immediate contribution of \$5 each for the use of the Legislative Committee.

Resolution adopted.

Mr. Gurler: I worked for several years with the Illinois Legislature, and I want to say this, you need to send some one down there to get in touch with the members of the Legislature, and it is not right to send a committee down there and expect them to pay their own expenses. They work for you and you want to pay the expenses.

Mr. Holloway: I wanted to suggest that \$5 for the creamerymen is hardly a fair proportion, when there is one creamery that is five times as big as another and that is doing five times as much business as another.

Mr. Schlosser: We simply send this out as a preliminary request, and if anybody wants to give ten dollars he can do it.

Scores of butter and cheese read, and prizes awarded.

Adjourned sine die.

REPORT OF TREASURER INDIANA STATE DAIRY ASSOCIATION.

Lafayette, Ind., January 21, 1903.

To the Officers and Members of the Indiana State Dairy Association:

I respectfully submit the following report:

RECEIPTS.

To balance on hand last report.....	\$65 59
Sale of premium butter and cheese.....	43 15
State appropriation	500 00
Contribution to last year's premium fund:	
Wells, Richardson & Co.....	\$15 00
D. H. Burrell & Co.....	10 00
	———— 25 00
Creamery lists sold.....	2 00
Checks never presented for payment.....	11 55
Sixty-four membership	64 00
	————
Total	\$711 29

DISBURSEMENTS.

By President's expenses to Plainfield meeting.....	\$4 50
Premiums awarded to	
Herbert Newby	\$25 00
Earl Martin	17 85
Perry L. Johnson.....	11 16
C. W. Lisman.....	11 16
C. E. Holderman.....	9 76
Mrs. E. J. Shaw.....	5 00
C. W. Kratz	12 00
Mrs. N. E. Parsons.....	3 00
Boyd & Drischel.....	15 00
	———— 109 93

Part of Secretary's expenses to Plainfield meeting—	
Express on exhibit, railroad fare and hotel.....	15 95
Speakers at annual meeting—	
Prof. J. W. Decker, Columbus, O.....	\$29 45
Prof. Oscar Erf	21 39
Prof. D. W. Dennis	7 00
	57 84
C. S. Plumb, balance as per vote.....	25 00
H. E. Van Norman, services as Secretary.....	50 00
J. H. Walker, stenographic report.....	30 00
Record book	55
Mimeograph paper	70
National Dairy Union.....	5 00
Wm. B. Burford, annual report—	
Printing	\$61 46
Engravings	16 80
	72 26
H. E. Van Norman, Secretary—	
Part of expenses to National Convention.....	13 75
Professor Latta, for speakers furnished.....	75 31
Prize cups	43 20
Home Journal Printing Co.—	
Letterheads and receipts.....	\$3 25
Certificates of membership.....	2 50
Envelopes	50
Programs, posters	15 00
	21 25
Typewriting and mailing reports.....	7 30
Express charges	1 55
Telegrams	1 50
Postage on reports, circulars, programs, letters.....	37 76
	\$579 35
Cash on hand.....	131 94
	\$711 29

H. E. VAN NORMAN,
Secretary-Treasurer.

The Auditing Committee have examined the report of the Secretary-Treasurer and find it correct.

SAM B. WOODS,
JOHN V. SHUGART.

January 22, 1903.

CREAMERY BUTTER—ENTRIES AND SCORES, LAFAYETTE, JANUARY 21-23, 1903.

SCORED BY PROF. G. L. MCKAY, IOWA AGRICULTURAL COLLEGE.

(Silver cup to highest Indiana score and premiums distributed pro rata to all scoring 90 or over.)

No.	NAME OF EXHIBITOR.	Address.	Flavor	Grain	Color	Salt	Pkg.	Total
			50	25	10	10	5	100
5	Herbert Newby	Spiceland	47 1/4	25	10	10	5	97 1/4
6	Anton Bueler	Barnes, Ill.	48	24 1/2	10	10	5	97 1/2
7	John Enger	Osceola	41 1/2	24 1/2	10	9 3/4	5	91 1/2
2	W. S. Hastings	Sullivan	40 1/2	25	10	10	5	90 1/2
4	J. F. Perrod	Plymouth	40 1/2	25	9 1/2	10	5	90
1	C. E. Holderman	Bremen	40	25	7	10	5	90
6	E. L. Martin	New Carlisle	43	25	9 1/2	10	5	89 1/2
8	Frank Lenick	Hanna	38	25	10	10	5	88

*Outside of Indiana. The cup awarded to highest in State.

FARM DAIRY BUTTER.

No.	NAME OF EXHIBITOR.	Address.	Flavor	Quality	Texture	Color	Salt	Total
			30	30	20	10	10	100
1	Mrs. Samuel Martin	Lafayette	44	25	10	9 3/4	5	94
2	Mrs. E. S. Hobart	Williamsport	41 1/2	25	10	10	5	91 1/2
6	Mrs. Jerome Dunlap	Lafayette	39	25	10	9 1/2	5	88 1/2
5	Mrs. Chas. Lamont	Joppa	38	25	10	10	5	88
4	Laura Jessup	Carmel	38	25	10	10	5	88
3	Isaac Brown	Decatur	37 1/2	25	9 3/4	9 1/2	5	86 3/4

CHEESE.

No.	NAME OF EXHIBITOR.	Address.	Flavor	Quality	Texture	Color	Salt	Total
			30	30	20	10	10	100
3	Boyd & Drischel	Cambridge City	24	29	19	10	10	92
2	G. P. Swan	New Washington	23	29	19	10	10	91
1	N. E. Nelmer	Evans Mills, N. Y.	22	29	19	10	10	89
4	P. G. Yoars & Son	Amboy	20	30	18	10	10	88

1. Genesee Salt.
2. Worcester Salt.
3. Diamond (Crystall Salt.
4. DeLaval Separator.
5. Russian Separator.
6. Sharpless Tubular Separator.
7. United States Separator.
8. Gravity System.
9. Danish Weston.
10. Wells-Richardson Color.
11. Alderney Color.
12. Hansen Columbia Color.
13. Velvet T.
14. Cadillac.
15. Colonial.
16. Garland.

NATIONAL OLEOMARGARINE LAWS.

[Public—No. 110.]

An Act to make oleomargarine and other imitation dairy products subject to the laws of any State or Territory or the District of Columbia into which they are transported, and to change the tax on oleomargarine, and to impose a tax, provide for the inspection, and regulate the manufacture and sale of certain dairy products, and to amend an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all articles known as oleomargarine, butterine, imitation, process, renovated, or adulterated butter, or imitation cheese, or any substance in the semblance of butter or cheese not the usual product of the dairy and not made exclusively of pure and unadulterated milk or cream, transported into any State or Territory or the District of Columbia, and remaining therein for use, consumption, sale, or storage therein, shall, upon the arrival within the limits of such State or Territory or the District of Columbia, be subject to the operation and effect of the laws of such State or Territory or the District of Columbia, enacted in the exercise of its police powers to the same extent and in the same manner as though such articles or substances had been produced in such State or Territory or the District of Columbia, and shall not be exempt therefrom by reason of being introduced therein in original packages or otherwise.

Sec. 2. That the first clause of section three of an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, be amended by adding thereto after the word "oleomargarine," at the end of said clause, the following words:

"And any person that sells, vends, or furnishes oleomargarine for the use and consumption of others, except to his own family table without compensation, who shall add to or mix with such oleomargarine any artificial coloration that causes it to look like butter of any shade of yellow shall also be held to be a manufacturer of oleomargarine within the meaning of said Act, and subject to the provisions thereof."

Section three of said Act is hereby amended by adding thereto the following: "Provided further, That wholesale dealers who vend no other oleomargarine or butterine except that upon which a tax of one-fourth of one per cent. per pound is imposed by this Act, as amended, shall pay two hundred dollars; and such retail dealers as vend no other oleomargarine or butterine except that upon which is imposed by this Act, as amended, a tax of one-fourth of one cent per pound shall pay six dollars."

Sec. 3. That section eight of an Act entitled "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, be, and the same is hereby amended so as to read as follows:

"Section 8. That upon oleomargarine which shall be manufactured and sold, or removed for consumption or use, there shall be assessed and collected a tax of ten cents per pound, to be paid by the manufacturer thereof; and any fractional part of a pound in a package shall be taxed as a pound: Provided, When oleomargarine is free from artificial coloration that causes it to look like butter of any shade of yellow said tax shall be one-fourth of one cent per pound. The tax levied by this section shall be represented by coupon stamps; and the provisions of existing laws governing the engraving, issue, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to stamps provided for by this section."

Sec. 4. That for the purpose of this Act "butter" is hereby defined to mean an article of food as defined in "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six; that "adulterated butter" is hereby defined to mean a grade of butter produced by mixing, reworking, rechurning in milk or cream, refining, or in any way producing a uniform, purified, or improved product from different lots or parcels of melted or unmelted butter or butter fat, in which any acid, alkali, chemical, or any substance whatever is introduced or used for the purpose or with the effect of deodorizing or removing therefrom rancidity, or any butter or butter fat with which there is mixed any substance foreign to butter as herein defined, with intent or effect of cheapening in cost the product, or any butter in the manufacture or manipulation of which any process or material is used with intent or effect of causing the absorption of abnormal quantities of water, milk, or cream; that "process butter" or "renovated butter" is hereby defined to mean butter which has been subjected to any process by which it is melted, clarified or refined and made to resemble genuine butter, always excepting "adulterated butter" as defined by this Act.

That special taxes are imposed as follows:

Manufacturers of process or renovated butter shall pay fifty dollars per year and manufacturers of adulterated butter shall pay six hundred dollars per year. Every person who engages in the production of process or renovated butter or adulterated butter as a business shall be considered to be a manufacturer thereof.

Wholesale dealers in adulterated butter shall pay a tax of four hundred and eighty dollars per annum, and retail dealers in adulterated butter shall pay a tax of forty-eight dollars per annum. Every person who sells

adulterated butter in less quantities than ten pounds at one time shall be regarded as a retail dealer in adulterated butter.

Every person who sells adulterated butter shall be regarded as a dealer in adulterated butter. And sections thirty-two hundred and thirty-two, thirty-two hundred and thirty-three, thirty-two hundred and thirty-four, thirty-two hundred and thirty-five, thirty-two hundred and thirty-six, thirty-two hundred and thirty-seven, thirty-two hundred and thirty-eight, thirty-two hundred and thirty-nine, thirty-two hundred and forty, thirty-two hundred and forty-one, and thirty-two hundred and forty-three of the Revised Statutes of the United States are, so far as applicable, made to extend to and include and apply to the special taxes imposed by this section and to the person upon whom they are imposed.

That every person who carries on the business of a manufacturer of process or renovated butter or adulterated butter without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than one thousand and not more than five thousand dollars; and every person who carries on the business of a dealer in adulterated butter without having paid the special tax therefor, as required by law, shall, besides being liable to the payment of the tax, be fined not less than fifty nor more than five hundred dollars for each offense.

That every manufacturer of process or renovated butter or adulterated butter shall file with the collector of internal revenue of the district in which his manufactory is located such notices, inventories, and bonds, shall keep such books and render such returns of material and products, shall put up such signs and affix such number of his factory, and conduct his business under such surveillance of officers and agents as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may by regulation require. But the bond required of such manufacturer shall be with sureties satisfactory to the collector of internal revenue, and in a penal sum of not less than five hundred dollars; and the sum of said bond may be increased from time to time and additional sureties required at the discretion of the collector or under instructions of the Commissioner of Internal Revenue.

That all adulterated butter shall be packed by the manufacturer thereof in firkins, tubs, or other wooden packages not before used for that purpose, each containing not less than ten pounds, and marked, stamped, and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, shall prescribe; and all sales made by manufacturers of adulterated butter shall be in original stamped packages.

Dealers in adulterated butter must sell only original or from original stamped packages, and when such original stamped packages are broken the adulterated butter sold from same shall be placed in suitable wooden or paper packages, which shall be marked and branded as the Commissioner of Internal Revenue, with the approval of the Secretary of the

Treasury, shall prescribe. Every person who knowingly sells or offers for sale, or delivers or offers to deliver, any adulterated butter in any other form than in new wooden or paper packages as above described, or who packs in any package any adulterated butter in any manner contrary to law, or who falsely brands any package or affixes a stamp on any package denoting a less amount of tax than that required by law, shall be fined for each offense not more than one thousand dollars and be imprisoned not more than two years.

That every manufacturer of adulterated butter shall securely affix, by pasting, on each package containing adulterated butter manufactured by him a label on which shall be printed, besides the number of the manufactory and the district and State in which it is situated these words: "Notice.—That the manufacturer of the adulterated butter herein contained has complied with all the requirements of law. Every person is cautioned not to use either this package again or the stamp thereon, nor to remove the contents of this package without destroying said stamp, under the penalty provided by law in such cases." Every manufacturer of adulterated butter who neglects to affix such label to any package containing adulterated butter made by him, or sold or offered for sale for or by him, and every person who removes any such label so affixed from any such package shall be fined fifty dollars for each package in respect to which such offense is committed.

That upon adulterated butter, when manufactured or sold or removed for consumption or use, there shall be assessed and collected a tax of ten cents per pound, to be paid by the manufacturer thereof, and any fractional part of a pound shall be taxed as a pound, and that upon process or renovated butter, when manufactured or sold or removed for consumption or use, there shall be assessed and collected a tax of one-fourth of one cent per pound, to be paid by the manufacturer thereof, and any fractional part of a pound shall be taxed as a pound. The tax to be levied by this section shall be represented by coupon stamps and the provisions of existing laws governing engraving, issuing, sale, accountability, effacement, and destruction of stamps relating to tobacco and snuff, as far as applicable, are hereby made to apply to the stamps provided by this section.

That the provisions of sections nine, ten, eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, and twenty-one of "An Act defining butter, also imposing a tax upon and regulating the manufacture, sale, importation, and exportation of oleomargarine," approved August second, eighteen hundred and eighty-six, shall apply to manufacturers of "adulterated butter" to an extent necessary to enforce the marking, branding, identification and regulation of the exportation and importation of adulterated butter.

Sec. 5. All parts of an Act providing for an inspection of meats for exportation, approved August thirtieth, eighteen hundred and ninety, and of an Act to provide for the inspection of live cattle, hogs, and the car-

casses and products thereof which are the subjects of interstate commerce, approved March third, eighteen hundred and ninety-one, and of amendment thereto, approved March second, eighteen hundred and ninety-five, which are applicable to the subjects and purposes described in this section shall apply to process or renovated butter. And the Secretary of Agriculture is hereby authorized and required to cause a rigid sanitary inspection to be made, at such times as he may deem proper or necessary, of all factories and storehouses where process or renovated butter is manufactured, packed, or prepared for market, and of the products thereof and materials going into the manufacture of the same. All process or renovated butter and the packages containing the same shall be marked with the words "Renovated Butter" or "Process Butter" and by such other marks, labels, or brands and in such manner as may be prescribed by the Secretary of Agriculture, and no process or renovated butter shall be shipped or transported from its place of manufacture into any other State or Territory or the District of Columbia, or to any foreign country, until it has been marked as provided in this section. The Secretary of Agriculture shall make all needful regulations for carrying this section into effect, and shall cause to be ascertained and reported from time to time the quantity and quality of process or renovated butter manufactured, and the character and the condition of the material from which it is made. And he shall also have power to ascertain whether or not materials used in the manufacture of said process or renovated butter are deleterious to health or unwholesome in the finished product, and in case such deleterious or unwholesome materials are found to be used in product intended for exportation or shipment into other States or in course of exportation or shipment he shall have power to confiscate the same. Any person, firm, or corporation violating any of the provisions of this section shall be deemed guilty of a misdemeanor and on conviction thereof shall be punished by a fine of not less than fifty dollars nor more than five hundred dollars or by imprisonment not less than one month nor more than six months, or by both said punishments, in the discretion of the court.

Sec. 6. That wholesale dealers in oleomargarine, process, renovated or adulterated butter shall keep such books and render such returns in relation thereto as the Commissioner of Internal Revenue, with the approval of the Secretary of the Treasury, may, by regulation, require; and such books shall be open at all times to the inspection of any internal revenue officer or agent. And any person who willfully violates any of the provisions of this section shall for each such offense be fined not less than fifty dollars and not exceeding five hundred dollars, and imprisoned not less than thirty days nor more than six months.

Sec. 7. This Act shall take effect on the first day of July, nineteen hundred and two.

Approved, May 9, 1902.

AMERICAN DAIRY JOURNALS.

The publishers of these journals will, no doubt, gladly send sample copies to those who may apply for them:

American Cheese Maker, Grand Rapids, Mich. Monthly.

Chicago Produce, Chicago, Ill. Weekly.

Creamery Journal, Waterloo, Iowa. Monthly.

Dairy and Creamery, Chicago, Ill. Semi-monthly.

Dairy and Produce Review, San Francisco, Cal. Weekly.

Dairy World, Chicago, Ill. Monthly.

Elgin Dairy Report, Elgin, Ill. Weekly.

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